THE MANCHESTER SCHOOL OF ECONOMIC AND SOCIAL STUDIES

12 - 13

VOLUME 12

1941

Manchester:

The University Press

KRAUS REPRINT LTD.
Vaduz
1964

Printed in Germany

Lessing-Druckerei — Wiesbaden

CONTENTS

Agriculture in Wartime

I

The shortage of shipping necessitates a reduction in the tonnage used for carrying the food imports of this country. This necessity has important consequences. It demands that we alter quite radically the diet of the nation, so that we do without food whose importation takes much tonnage in proportion to its dietetic value, *e.g.* apples and bananas. We must use our shipping in conjunction with agriculture to provide a simplified and adequate supply of foodstuffs. We must alter and expand agricultural production so that necessary imports are of such a quantity and kind that we can economise on shipping.[1]

We know fairly precisely what we mean by an adequate yet simplified diet. The adequacy of any given diet can be tested against standards which are, within reasonable limits, known and accepted. The human body has need of different kinds of foodstuffs which varies with varying conditions of work, growth, temperature and sex. It must have protein for growth and restoration of tissues—of which a proportion must be obtained from animal products, *e.g.* meat, milk or cheese, and the remainder from such things as cereals (particularly oatmeal) and pulses. It must have fats and carbohydrates to provide energy and warmth, and these can be obtained largely from vegetable sources (oils, potatoes and cereals), or are associated with animal protein (milk and animal fats). In addition, for health, the body needs a supply of vitamins and minerals, which are for the most part to be found in a well-balanced diet of fresh foods.[2] The best way to provide the population with a sufficiency of these different

[1] Shipping for carrying food imports and labour employed on the land are substitutes for each other. The extent to which we should use the one and economise on the other is a question which cannot be decided without the fullest information on the competing claims upon our resources of shipping and labour.

[2] Present restrictions on the choice of foodstuffs make particularly desirable the encouragement of the use of so-called protective foods (*e.g.* wholemeal bread) to prevent deficiency diseases or conditions.

kinds of foodstuffs depends, of course, upon the nature of our agriculture, and the ease with which different foods can be shipped.[1]

The British system of mixed farming, centred largely upon the cow and sheep, is the consequence of two developments—the cheap grain production of new countries, and the rising standard of living of this country which has brought increased demands for meat and dairy products. But this so admirable method of achieving harmony *vis a vis* the agriculture of other countries is unsuited to the needs of war. And the same is true of our normal diet. Our average consumption of protein is in peace time greater than is necessary for health,[2] and we take an unduly high proportion of first-class or animal protein in the form of meat. We should be wiser to rely more largely upon milk for this essential element in our diet. An acre of land or a ton of imported fodder will yield a considerably greater amount of food when used for dairy farming than for stock raising.[3] Milk is in many respects a more valuable food, being an important source of Vitamin A, whose absence makes the body susceptible to disease,[4] of calcium, the important anti-rachitic mineral, and of Vitamin B_2, which is certainly required by children during growth. Moreover, the protein of milk is particularly valuable for its digestibility, while milk, of course, is an important source of fat and of storable protein in the form of cheese. Clearly, therefore, if we are (as we are) faced with the necessity of reducing our livestock, our correct policy is to maintain, so far as we can, our milk production, and ease the strain upon our land and shipping resources by slaughtering beef cattle.

Home beef production is a particularly wasteful use of resources. It necessitates the importation of bulky fodder and it uses land which would be much more productive of foodstuffs if used for growing crops to be fed to dairy cattle

[1] The Esquimaux, for example, appear to be quite healthy on an almost exclusively meat diet.

[2] *Cf.* J. B. Orr, *Food, Health and Income*, particularly p. 35.

[3] *Cf.* Middleton, *Food Production in War*, Ch. IV.

[4] Drummond and Wilbraham, *The Englishman's Food.*

or for direct human consumption. We should be nearer self-sufficiency if we used the land growing roots and grass for beef production for growing potatoes and oats and for milk production, and if we employed the hill grazing[1] used for cattle breeding for the purpose of carrying mountain sheep which make smaller demands upon our fertile land for their fattening.

To produce our simplified diet, then, agriculture must revise its activities and free our shipping to carry the grain and fats we cannot do without and cannot produce. The changes needed both in our diet and in our agriculture should not, however, be exaggerated. We shall in any event continue to obtain home-produced meat from sheep, from cows with poor milk yields and from calves;[2] and, of course, our supplies of home-fed beef would be increased during the period when our live stock was being diminished by slaughtering. Meat would be of smaller importance in our diet; milk, potatoes, oats and vegetables would gain in relative importance. Our farming would still largely interest itself in cattle, and in producing food for cattle and for people on land rendered fertile by cattle. By ploughing a greater proportion of land and by growing more roots, cereals, pulses and temporary grasses we should endeavour to make the remaining cattle less dependent upon food imports. In doing this we should be using the fertility of the soil acquired during years of grazing. But the continued fertility of the land, as it has been, would still be dependent upon animal husbandry carried on in a system of mixed farming.

The maintenance of milk production and of dairy stock are both very desirable if we are to be able to wage a protracted war. If we are to reduce our beef production and to increase our rotation crops, the continued fertility of the land will be highly dependent upon the remaining livestock. Some reduction in fertility is, one presumes, inevitable.

[1] The importance of grass lands used for breeding is indicated by the fact that the number of cattle in the hands of breeders is some four times as great as the number fattening. *Cf. British Agriculture*, London, 1938 p. 183.

[2] Together these constitute a very substantial part of the home-produced meat supply. Meat provided as a bye-product of dairying constitutes just under one-half of the total beef and veal supply.

It would, however, clearly be imprudent to allow this decline to become catastrophic until we are within measurable sight of the end. Moreover, it would constitute a source of strength to have a supply of so essential a food as milk, and a store on the hoof of so valuable a food as beef, which would be virtually independent of foreign supplies. But this desired maintenance of dairy farming will not easily be achieved, despite the contemplated fall in beef production. High milk yields have been dependent upon the feeding of imported concentrates and a plentiful grass supply. The supplies of both these foods must tend to be curtailed : the one because of the shipping position, and the other from the endeavour to grow things previously imported.[1]

The feeding of cattle presents problems essentially similar to those arising out of the provision of sufficient and suitable food for people. The cow, like man, needs protein to make good the normal waste of tissue ; it needs additional amounts when growing, when in calf and when in milk. The cow, however, which is the most important source of first-class protein needed by man, utilizes vegetable protein which, fed directly to man, would have serious deficiences. Moreover, the cow like man, needs carbohydrates—*i.e.* energy producing foods—for warmth, to perform the normal work of the body, for fattening and for the fat content of milk. In peace time, both classes of food are imported in large quantities.[2]

Imported protein is largely in the form of oil seeds (linseed, cotton seed, etc.) or oil cakes, while cereals (*e.g.* maize) or cereal products (bran, pollards and other bye-products of flour milling) largely constitute the other variety of imported foodstuff. Although some imported supplies will be maintained, because of the need for vegetable oils and for imported wheat, we must be prepared for a reduction in the supply of imported cake, of milling bye-products, as a consequence of a

[1] This must certainly tend to happen under the present policy, for dairy farmers, like others, have been asked and forced to plough up grass.

[2] By value, about one-half of our feeding stuff requirements, other than grass, is imported. *Cf. British Agriculture*, London, 1938.

higher rate of extraction of flour,[1] and of oil seed, on account of the rationing of fats. Despite the reduction envisaged in the cattle population, it is apparent that as in the last war, the shipping position may cause a shortage of fodder for dairy stock.[2] Hence, the home production of these foodstuffs, or substitutes for them, becomes an urgent matter. The chief sources of home-produced protein are, in the summer, grass, and in the winter good quality hay, silage or dried grass, kale and pulses. Of energy foods, the chief sources are cereals (oats, barley and rye), roots, sugar beet pulp and tops, and the cellulose of protein-yielding foods.

It is clear, therefore, that the necessities of the moment make pressing demands upon the farmer from many directions. To replace imported foods whose supply has been curtailed (bacon, sugar, fruit, fish and meat) the farmer is asked to plough up grass land to increase the supply for direct human consumption of oats, potatoes, wheat and vegetables. If this is not done we may go hungry.[3] The farmer is to be urged to plough in order to make himself less dependent upon imported grains and cakes for winter feeding. At the same time he is to be asked to maintain milk production; so that he must endeavour to maintain total grass production on what must on many farms be a considerably reduced acreage—by improving the stock-carrying capacity of pastures, by cutting surplus summer grass for winter fodder, and by improving the yield of temporary grass land.

This then is the policy which the needs of the time appear to dictate : slaughtering of those animals which are winter fattened upon roots and imported fodder, as in the Norfolk system ; and slaughtering of animals fattened during the summer on the rich grass lands of Lancashire and the Midlands, which can be better used for milk production and arable cultivation. A shrinkage would consequently be required

[1] In the last war, extraction was raised from a normal 70 per cent. to 80 per cent., while a 10 per cent. compulsory admixture was enforced. *Cf.* BEVERIDGE, *British Food Control*, p. 96.

[2] This has already been experienced.

[3] The total intake of calories in peace-time is calculated to be little more than is physiologically necessary. Cf. J. B. ORR, *Food Health and Income.*

in the cattle-breeding industry using the poorer grass, *e.g.* of Scotland and Wales. This shrinkage would allow an increase in hill sheep-farming, free some land for ploughing and perhaps some additional milk for human consumption. Dairy farming must economise in its use of grass land, make smaller demands upon shipping by slaughtering animals with a poor milk yield and release land for ploughing to help carry its own stock by producing more energy yielding foods.

There are a great many difficulties attending this policy. Although a strong case can be made for the virtual supersession of beef production as such, it would be an illusion to suppose that there is nothing to be said on the other side. The finishing of cattle (and of sheep) for slaughtering is carried on under two systems. In predominantly arable country, *i.e.* the wheat-growing land of the East and the Downs, cattle are fattened during the winter on roots and concentrates, or sheep are folded upon the land, so that their dung may maintain the high yield of corn. On the grass land of the Midlands and the North-West, cattle are fattened during the summer. They are imported into these regions from Wales and Scotland, where they can be bred but not, at any rate so satisfactorily, finished upon the poorer grass of the hills. And in normal times, they are also imported from Ireland, as indeed are heifers to maintain the dairy herds. Yet to put an end to these activities has certain rather serious consequences even during the war.

The fertility of the Eastern wheat lands would fall, for it is impossible that there could be a marked acceleration in the turnover to dairy farming.[1] We have then here a choice ; we may allow a fall in cereal production, doing our best to limit it by application of fertilizers : or we may reduce the acreage of land growing human food and encourage the growing of products, *e.g.* kale, mangold, beans, etc., which would help this industry to carry on, though, of course, it is not to be expected that the beasts would be of the same grade. Which we ought to adopt depends, *inter alia*, on how long we think the war may last. The problem presented by the summer

[1] *Cf. British Agriculture*, pp. 182-187.

industry is more tractable. By breaking up grass, cattle can be (largely) fed upon this land throughout the year, while normally it maintains them only in the summer. And in addition, as in mixed farming, the cattle would allow crops of cereals etc. to be grown for human consumption. Moreover, as the number of cattle contracts it should be possible, if the necessary equipment and labour can be provided, to induce a turnover to dairy farming. The curtailment of facilities for finishing cattle must in part destroy the *raison d'etre* of the breeding industry and involve it in considerable adjustments. We could leave it to carry on as best it could under the new conditions, reducing the quantity of cattle carried, improving where possible the condition at which it sells them (though it would, on the poorest land, still be lean and watery beef), encouraging the ploughing of hillside grass, its reseeding and so on. We could, as suggested above, encourage sheep farming on the land,[1] which could be more easily be made self-sufficient. Or we could come to the conclusion that in respect of some land it would be more economical under the new conditions to allow its temporary abandonment. Though the difficulties are real, it may then be doubted whether they are insuperable. There is, however, one conclusion which can clearly be drawn. To readjust the agricultural economy in such a way that production under the new conditions may be as great as possible must certainly take a considerable time. From the determination of policy and the announcement of incentives to completion of the new pattern must be a matter of years rather than months. Hence, it is very much to be regretted that at the outset of the war we did not anticipate more clearly our present difficulties and indicate a policy more appropriate to them.

A policy of reducing animal husbandry, reducing imported fodder and increasing arable cultivation creates the difficulties usually associated with a change in the products of industry—a scarcity of some of the required factors of production. The conversion of grass to arable land demands time, tractors, agricultural machinery and skilled workers. All these are scarce and their scarcity must delay us. There are many

[1] If sufficient breeding ewes are available, which is doubtful.

farmers whose land is almost entirely under grass, engaged in stock-raising and dairy farming and dependent upon purchased foodstuffs. They have little experience of arable cultivation, little skill with the plough[1] and inadequate farm equipment. Asking farmers to produce more milk, wheat and potatoes and less beef is not different in essence from asking the engineering industry to produce fewer cars and more aeroplanes. Again, to maintain the milk yield, when shortage of imported fodder is almost certain to reduce the yield per cow, obviously necessitates increasing the number of dairy cattle. Here, also, will arise a shortage of equipment. Where cattle are fattened on grass in the summer there will be a shortage of the necessary buildings (as well as of dairying equipment) for all-the-year-round milk production. Nor should it be overlooked that the new kind of farming we require demands more labour on the land. Milk production needs more attention than beef production ; ploughing and preparing the seed bed, sowing and harvesting demand more labour than the management of grassland and haymaking. It is inevitable that here, as elsewhere, labour shortages, and particularly a shortage of skilled labour, will limit production.

Perhaps the more serious kinds of shortages are of knowledge and enterprise. In our new situation, we need above all better husbandry and management to obtain the best results from the resources at our disposal. The farmer is accustomed to ensure his milk yield by a plentiful ration of protein-rich cake : he is now required to pay more attention to the relation between feed and yield—to put on one side traditional method and to experiment with the foodstuffs at his disposal. We need also to increase our arable acreage without reducing the standards of cultivation, at a time when the ploughing of grassland is providing difficult problems to farmers innocent of any great experience. Finally, and perhaps more important, we have to make good the reduction in the area under grass by increasing the yield of the remaining grasslands. In effect this involves making general, farming methods which have

[1] A scheme has now been suggested by the Minister for Agriculture whereby workers from the arable districts should be transferred to grass areas.

recently been adopted by the more skillful—the making of silage, the drying of grass, the ploughing and reseeding of pastures, experimentation with grasses for leys and the more careful cultivation of grasslands.

A most serious trouble is, it is clear, a lack of time. It has taken two winters to plough some 3½ million acres, some of which has inevitably been indifferently done and yielded poor returns. As important as increasing our arable land—probably more important in view of the shortage of labour and experience—are improvements in the fertility of the soil and methods of farming. But to do this would more fittingly be the task of a long-term policy than of a short-term war effort. Much no doubt has already been done by subsidising the application of lime and basic slag, by financial assistance for drainage schemes, and by the advisory services. But much more time is needed, while investment in land is hampered by the lack of labour for anything but the pressing work of the moment. Moreover, better farming is more a matter of methods and care and knowledge than of inducing farmers by financial help to do certain things which are, in general, in need of being done throughout the country. Improvements in methods and knowledge demands much more intimate and continued advice and assistance than is possible during a few seasons. And this conclusion applies particularly to the management of grass land, and to the building up, maintenance and management of dairy herds. The lack of time is perceivable also from another angle. The changes needed during the war by farming demand time—to organize the labour needed at harvesting, time for an orderly transference of energies, and, not least important, time to win support and co-operation for new policies. Finally, there is the delay inevitable in farming between decision and the results of decision.

II

For all these reasons it is regrettable that our agricultural policy has lacked boldness, incisiveness and imagination. Until we were confronted in the summer of 1940 with the

acute danger to our sea communications, there was little evidence of the changes which we should need to make, or of the need for marrying our nutritional and agricultural policies. Consequently, save for one or two measures, farmers were given little indication of the demands which would be made upon them or of the disturbance that would be necessary to their normal operations. Indeed, in the autumn of 1939 and the spring of 1940, how they were to act for the national good was left largely to their own judgment as influenced by imperfectly controlled prices.

There is evidence to justify this statement. The ploughing campaign of 1939-40 conducted by County Agricultural Committees obtained contributions towards its goal of 2 million acres by imposing quotas upon counties, which in turn imposed quotas upon districts. In this way, with some qualification for exceptional circumstances, all districts and farmers contributed their share to the increase in arable land. Although, of course, discrimination was exercised in the kind of grass land broken up—the good pastures being spared and land suitable for crops being ploughed[1]—the campaign was not used as an instrument for discriminating against certain uses of grass while almost any crop from the newly-ploughed land was qualification for the subsidy. If he wished the farmer could grow fodder for fattening livestock. The first prices announced for livestock—cattle, sheep and pigs—gave no indication of a desire to discourage this type of farming. Indeed prices, on the whole, appeared to be satisfactory to the industry, being somewhat better than the free prices previously obtaining.[2] For some agricultural products maximum prices were fixed, and the plea of farmers went largely unanswered for guaranteed prices which would allow them to plan ahead an increase in production. Only in the case of allotments was there an attempt to promote the growth of vegetables—the best and cheapest of protective foods, and

[1] Many farmers would, however, question this statement.

[2] It is interesting to notice that one matter for complaint was found in Scotland in the poor prices to be paid for mutton from small mountain sheep.

the Government is still without a policy for increasing production *and* ensuring increased consumption.[1]

There was little encouragement given to milk producers. In the autumn of 1939 milk prices were advanced piece-meal (*e.g.* the price for manufactured milk was increased and negotiations were started that later led to a rise in liquid milk prices), but the farmer was not told the pool price he could expect to receive and he could not therefore judge how profitable his farming would be.

It is hard to avoid the conclusion that initially the policy adopted was an extension of our pre-war programme of improving the profitability and balance of agriculture by extending the arable acreage and providing profitable prices for certain crops, *e.g.* wheat, but at the same time limiting these benefits to avoid too great an increase in the cost of living or burden on the budget. Increases in prices were interpreted by the farming community as a not too generous response to rising production costs. The increases in prices for wheat, oats, milk, potatoes and livestock all appear best to bear this explanation.

For war-time planning it has to be realised that price policies should have a double aim—to control production and to control (stimulate or restrict) consumption. And this necessitates that very often dual prices must be fixed—one for producers and one for consumers. Neither tenderness towards the Exchequer nor attention to the cost of living ought to hamstring agricultural policy.

III

Events have forced the Government to accept for agriculture a policy along the lines of that outlined in Section I above, and agriculture and our diet, we have been told, are

[1] In the case of onions and carrots, however, remunerative prices and markets have been assured. The Ministry of Food has encouraged the public to make use of different vegetables during the seasons when there are plentiful supplies. But probably something more than this is needed, *e.g.* giving specially favourable prices to families with children, families dependent upon men in the Forces, works' canteens, etc. We cannot, in the case of such important foods as fresh vegetables, safely rely upon a free price system and individual tastes and judgment.

to be based upon milk (for liquid consumption and cheese), potatoes and oats (for human consumption and for animals) and bread (for whose production we are to economise imported wheat by introducing wholemeal bread and growing more at home). We are to reduce severely our pig and poultry population, and it is acknowledged that our beef cattle must be reduced in number.

The key to an understanding to much of our present agricultural policy is to be found in two instruments of government control—the rationing scheme for animal foodstuffs, introduced on February 1st, 1941, and the price policies which have been adopted for milk, on the one hand, and beasts for slaughter on the other.

Under the rationing scheme the needs of each class of livestock are calculated and coupons entitling farmers to foodstuffs are supplied for proteins and for cereals. Bulky fodder crops (*e.g.* roots and grazing) are not rationed and farmers are expected to grow sufficient of these for the maintenance[1] of beasts and for some contribution to the milk and meat supply. The allocation of supplies of rationed foodstuffs is on a different basis for different animals. For cattle and sheep coupons were initially issued in respect of animals kept on December 4th, 1940 (when returns were obtained)[2], but for pigs and poultry the basis is the number kept on June 4th, 1939. The supplies initially allotted to the latter are one-third of the quantity of feeding stuffs necessary to maintain that number on a full ration. Cows in milk or in calf entitle the farmer to 3¾ lbs. a day for each animal. Fattening cattle for slaughter before April 30th, 1941, receive 3 lbs. a day, while other cattle are granted 1½ lbs. On appeal, and when stocks of fodder are insufficient to maintain milk production, farmers can be allotted an additional allowance of 3½ lbs. a day for each cow for every gallon by which the average milk yield exceeds 1½ gallons a day.[3]

[1] By maintenance is meant, *e.g.* upkeep of store cattle prior to fattening or of cows whose milk production will be assured by supplementary feed.

[2] Subsequently, the basis will be the last quarterly return.

[3] The proportion of protein to cereals allowed varies according to the type of livestock.

Farmers are divided into two classes—"surplus" and "deficit" farmers, on a somewhat conventional criterion, according as they do or do not "grow" sufficient cereals and pulses (*i.e.* rationed foodstuffs) for the needs of the stock with which they are credited. The average under different crops in 1939 (*not* 1940) is taken and the estimated production for each farmer is thereby calculated on the crop returns (*i.e.* yields) of 1940. The resulting figure gives the amount of farm-grown rationed food. If this amount is in excess of estimated requirements the farmer must sell the surplus before becoming eligible for coupons, while the coupons he will receive will be determined by the quantity of needed farm-grown produce he sells. The needs of "deficit" farmers are calculated upon the difference between rations to which they are entitled and the quantity of retained farm-grown rationed crops. The crops produced upon the increase in acreage between 1939 and 1940 are not taken into account in determining a farmer's needs and they are therefore "ration free."

The rationing scheme has been used to further the ends of policy in a number of directions. It has given a measure of control over the uses of foodstuffs, and has become an important instrument in determining the output of agriculture. However, it should be remembered that there can be no guarantee that on a mixed farm the different kinds of animals will share the rations in the way that is desired. This control severely rations pigs and poultry and hence is forcing a (rather slow) reduction in their numbers. By omitting from the computation of available rationed supplies the produce of increased acreage,[1] the scheme encourages farmers to become more self-supporting at the price of relaxing control over the output of agriculture ; while the omission of roots, grass ensilage and hay from the rationed feeding stuffs will be an incentive to attempts at self-contained farming.

Even for cattle there can be no question that the rations have been considered meagre. This has been particularly the

[1] Wheat, however, may now only be used for seed or for human consumption. This crop, whether or not grown on an "increased acreage" is no longer available for fodder and is not now included in the computation of available rationed supplies.

case where farmers have not by their own activities prepared themselves to meet the shortage, or where they have sold feeding stuffs for cash. There are indications that the shortage of feeding stuffs has led not only to a reduction in the number of beef cattle but also to a reduction in dairy herds.[1] No doubt the effect on the former has been greater than on the latter. The first effect of food shortage upon dairy herds, as the Minister of Food announced, is a fall in milk yield, which acts as a shock absorber against the necessity of reducing the herd. Moreover, there is provision for dairy farmers to receive extra supplies when the milk supply is endangered. Though to what extent cannot be known, it is certain that since the food supply became really difficult about December, 1940, and even more since rationing began in February, 1941, the cattle population must have declined in accordance with Mr. Hudson's recently expressed wishes. And it is probable that the quite generous controlled prices for fat stock,[2] the more generous rationing of dairy herds, and the promise (lately redeemed) of good prices for milk have ensured that the decline has been of the kind officially desired.

It may, therefore, be said that, at last, active steps have been taken to follow the policy outlined in Section I. It is worth recording here that the Minister of Agriculture has stated that there is to be no panic slaughtering, that he has acknowledged that the fertility of corn land depends upon sheep and cattle, and that farmers are asked to do their utmost to grow foods to minimise the reduction which to some extent is inevitable and desirable.

Further measures are operating to the same end. From April of this year, the rationing unit is to be devalued from 1 cwt. to .5 cwt. of feeding stuffs, *i.e.* the amount of feed to be

[1] The prices fetched by livestock are low compared with fat-stock prices, save for cows in milk or in calf. Naturally there is a good demand for these by producers eager to maintain milk production, but who are not in a position to maintain dry cows and heifers.

[2] A bonus of 2*s*. a live cwt. is now given for cattle killing out in grade B (55, 54 and 53 per cent.)—that is, in general, cattle which are not well finished as they might not be on account of short rations.

obtained from allotted coupons is to be reduced by one-half. For some animals (notably farm horses and dairy cattle) the consequent reduction in supplies is to be made good, in whole or in part, by granting more coupons. For April (and for early May in parts of the country where the new grass is backward), dairy cattle will obtain 90 per cent. of the basic ration which is given above. Other cattle (together with sheep, pigs and poutry), are to have their rations reduced with the unit to 50 per cent. Though perhaps this measure is not of great immediate importance, for cattle will soon be at grass, it is, more than exhortation, a clear indication of policy, of what the situation is likely to be next winter and of the personal responsibility that rests upon farmers for their own food supply. For the winter 1940/41 they were, like the Government, unprepared.

The price policy of the Ministry of Food is operating in conjunction with the rationing scheme. Although it is not easy to present in summary fashion the many different prices for classes of fatstock, it is quite clear that since controlled prices were first introduced[1] for a short period in September, 1939, the prices guaranteed to farmers have moved steadily upward.[2]

The upward movement of prices continues steadily until June and then falls by about 9*s*. a live cwt. to the end of October, 1941. Subsequent prices have not yet been issued. This price movement should encourage an early reduction in the number of cattle to obtain benefit from the good prices and to avoid the lower, later prices.[3] Early slaughtering should diminish the number to be carried through the winter, though it is not clear what the effect of uncertainty about the prices ruling after October will have upon plans for the winter or

[1] Maximum prices were announced in September, 1939; prices were first fixed in January, 1940.

[2] For A quality killing out at 54-56 per cent., the price per live cwt. rose from 58*s*. 6*d*. on January 15th, 1940, to 60*s*. on April 5th, 62*s*. 6*d*. on June 7th, 65*s*. 6*d*. on August 23rd, 63*s*. on January 13th, 1941, to 66*s*. on April 7th. Prices are obtained from the *Farmers Weekly*.

[3] There is, however, normally some fall in prices between June and October which in 1940 was not so marked as in the 1941 prices.

upon cattle breeders.[1] There is, therefore, promise of efforts being successful to reduce the livestock population during 1941 and to obtain an orderly flow of meat.

The policy relating to milk prices is an indication of the importance attached by the Government to the maintenance of milk production. Guaranteed pool prices were announced in February, 1941, for the period April, 1941, to March, 1942, inclusive. The farmer knows, in particular, the winter prices he can expect to receive ; and if he considers them attractive, as the Government evidently intends them to be, he can take steps early in the season to ensure a high yield of winter milk. The prices promised for the winter 1941/42 are appreciably higher even than the high prices ruling in 1940/41 ; the prices for December, January and February are, for example, up by 5d. a gallon. The December price is at the unprecedentedly high average level of 28.432d. against 23.842d. for 1940, 16.842d. for 1939 and 15.432d. for the basic year 1938. This increase in price is proportionately much greater than for fat stock. The whole range of prices for 1941/42 is above that for 1940/41, but the price increase in the winter is above that for the summer, just as the increase in costs is largely concentrated in the winter months if output is not to fall disastrously. Both from his experiences under rationing and from official pronouncements that dairy farmers cannot expect to continue to receive the rationing privileges of the last few months, he must now realize the condition which will allow him to enjoy these prices—growing winter food. The high prices of this winter were in part rendered ineffective by a belated recognition of the same condition.

Because production of milk is being carried on under such different circumstances, especially in the winter, the effect of these prices in encouraging farmers must be difficult to gauge. Consequently the Minister of Food has promised a revision of the position after September, 1941, and after March, 1942, and if costs of production are found to have risen from 1938/39

[1] However, the serious outbreak of foot and mouth disease in Eire has stopped importation of store cattle, and must, if it continues, affect the number of cattle being fattened.

in greater degree than prices a retrospective adjustment of returns will be made. But, of course, guaranteed prices are much more valuable to the individual farmer than the promise of an adjustment on the basis of the average experience of the industry. It is, therefore, very much to be hoped that in fixing prices the Ministry of Food has accurately foreseen the cost conditions which will rule under the new conditions.

It is apparently the Government's policy to reduce the sheep population, except in the case of hill and mountain sheep. The prices fixed for sheep and lambs do not show the same increase as that granted for fat cattle (much less for milk),[1] and, indeed, are not generous even in comparison with prices ruling in the free markets of recent peace-time years. And, as we have seen, like producers of beef, sheep farmers have been warned of the reduction of supplies of rationed foods. It was to be expected that the production of grass fed sheep and lambs would be discouraged—though it is not clear why it should be discouraged more wholeheartedly than the production of grass fed beef—as it has been by low prices and shortage of food in the winter and at lambing time. But this course of action has not only discouraged the use of grass for sheep feeding, to be used for dairying or for growing human foodstuffs, but also arable sheep farming, which, as it has been officially admitted, is required for corn growing. Moreover, the decline of arable sheep farming (which has been noticeable for some time) has in part been due to the high labour cost of folding sheep, pulping turnips, etc. And it is inevitable that higher war-time wages and the shortage of labour must operate differentially against such farming and accelerate its decline, unless some kind of assistance is given.

To some extent the hill and mountain sheep farmer has been sheltered from the adverse treatment of the industry. A subsidy of 2*s*. 6*d*. a year is paid for each breeding ewe ; the

[1] The prices per lb. for fat sheep for the last fortnight of June in 1940 and 1941 respectively are $11\frac{3}{4}$*d*. and 14*d*. and for the end of March in the same years 12*d*. and $15\frac{1}{4}$*d*. The first maximum price announced in September, 1939, was 10*d*. The price of sheep customarily falls markedly and continuously from Spring to Autumn.

price per lb. fixed for light-weight fat ewes has been increased by more than the average increase in prices for sheep ; and the ration allotted to mountain and hill ewes and rams for the breeding and lambing season appears to be quite high. Although this cannot be considered either a very generous or imaginative policy, it may, together with the absence of alternative uses for hill grazings, be sufficient to encourage this section of the industry.

The desire for increased production of human and dual purpose foodstuffs is indicated not only by pronouncements but also by the announced policies relating to wheat, oats and potatoes. One of the first steps taken was to remove the penalties upon increasing acreage under these crops, whether under the Wheat Acts, the Agricultural Development Act or imposed by the Potatoes Marketing Board.

In November, 1939, it was announced that the standard price for home-grown millable wheat would be raised from 10*s*. to 11*s*. a cwt., while the effective standard price was, in fact, raised to a greater degree by the removal of the limitation upon the bounty paid to wheat growers that arose from a maximum anticipated supply. On August 1st, 1940, a ***guaranteed*** price of 14s. 6d. a cwt. was fixed for wheat harvested in 1940 or earlier years. There has therefore been an increase in the price received by the farmer of around 50 per cent., which must considerably ease the task of the County Committees in persuading farmers to put suitable land under wheat. The use of price control is an instrument for guiding production does not seem in this instance to have been very happy. The fixing of prices in August, 1940, for winter wheat sown in 1939 or spring wheat sown in early 1940 can compensate farmers for any increases in costs, but it cannot play upon their expectation at sowing time or during cultivation and so encourage them to expand production. In different spheres the farming community has pressed for an early announcement of prices that would enable them to plan production, and in this it is surely right. Belated announcements of prices destroys a good deal of the virtue of a generous price policy.

In December, 1939, the standard price of oats was raised from 8*s*. to 9*s*. a cwt., and in January, 1940, maximum prices for oats for different purposes were fixed, which were in every case substantially above the standard price.[1] In August, 1940, the standard price was again raised to 11*s*. 6*d*. a cwt., while in September, 1940, a single maximum price of 14*s*. 6*d*.[2] was fixed for a sale by growers. The market price has continually pressed against the maximum, and has risen from 5*s*. 3*d*. on the outbreak of war to the present maximum of 14*s*. 6*d*. The same criticism levelled at the price policy for wheat also may be urged here. Both the standard price fixed in August and the maximum price fixed in September, 1940, are primarily concerned with the 1940 crop, and farmers, no doubt, have uncertain expectations of better prices from the crops harvested from the spring sowings of 1941. But, taking into account the uncertainty of the farmers' expectations, it is again clear that a powerful incentive has been provided not only for a greater oats acreage but also for better and more intensive cultivation.

The prices of potatoes have been lifted well above the levels ruling at the outbreak of war ; and although it is difficult to give a meaningful average price for a crop so subject to fluctuations as potatoes, it can with confidence be said that present controlled prices compare very favourably indeed with peace-time returns. For in ordinary times potato growing is attended by considerable price uncertainty. While today generous minimum prices[3] have been fixed and farmers have been assured that surplus potatoes will be taken off their hands at satisfactory prices.[4] Again, it may be pointed out

[1] For oats for milling, the maximum price was fixed at 13*s*. up to February 29th, 1940, and 12*s*. thereafter ; for feed the price was fixed at 11*s*.

[2] This does not apply to seed.

[3] To give some indication of the prices now ruling, it may be observed that for a class of potatoes fetching 80*s*.-85*s*. a ton on the outbreak of war, the minimum prices fixed in September, 1940, are 130*s*. for October, 135*s*. for November-December, 1940, rising to 160*s*. for May and June, 1941. Maximum prices are 5*s*. a ton more than the minimum.

[4] To be resold, at lower prices, for animal foodstuffs, or to be used in the newly erected factories.

that the practice has been to make belated announcement of the returns growers may expect from their crops. Thus the latest increased prices were announced on September 26th, 1940, when, of course, a good proportion of the 1940 crop was in, while maximum prices for new potatoes were announced on April 30th, 1940, when, of course, the seed was planted.

IV

Government policy towards agriculture is, then, beginning to take shape. Already we have achieved some reduction in the number of livestock, particularly of store and fat cattle, pigs, poultry and sheep ; further reduction will be forced by rationing and price control, while the Minister of Agriculture has warned farmers of the necessity for culling dairy herds and reducing the number of beef cattle. We have already increased our arable acreage by around 3,500,000 acres, and it has been officially stated that it is equally important to improve cultivation and apply the new and improved methods that have resulted from research. The County Agricultural War Committees have important powers for directing farming activity, ordering ploughing and the cultivation of particular crops, insisting on better methods and of evicting unsatisfactory tenants. These powers, in conjunction with the sanctions of rationing and the incentives provided by price control, can be seen to be driving agriculture in the direction that has been indicated above.

JACK STAFFORD

Saving and the Rate of Interest in War-time

The purpose of this note is to draw attention to an economic difficulty into which we are probably drifting as a result of our policy of maintaining low rates of interest in the face of colossal government expenditure. That policy offers very decided advantages, and for those advantages it has been deliberately adopted ; nevertheless its results are not likely to be all plain sailing. We have had so much exhortation to think in real terms and forget about financial considerations, that we may be tempted to overlook the real forces which underlie the financial superstructure. There are some real forces which do so, and we may have trouble with them before we are done.

The trouble I have in mind has been concealed by an ambiguity in that notoriously dangerous word—saving. It is not one of those complicated ambiguities round which economists used to chase their own tails in the good old days : it is quite a simple ambiguity. We are used to saying that a person saves when he spends less than his income ; saving is defined as the difference between income and consumption. That is quite a good definition for most purposes ; it is, for example, the amount of saving in this sense which affects the volume of purchasing power and directly operates on prices. Nevertheless, saving, so defined, includes two appreciably different things. A person may spend less than his income in any particular month (or year), either because he has in mind some particular future expenditure (perhaps he is *saving up* to get married or to buy a motor-car), or because he proposes to invest his savings and to increase his future income by the interest on them. The distinction between these two sorts of saving is not rigid : one of the advantages of accumulating personal capital is that it gives one a nest-egg on which to fall back in emergencies. In spite of that, the distinction remains between those more or less permanent savings which

may perhaps be spent in an emergency but are not meant to be spent, and those intentionally temporary savings which are meant to be spent on some particular future occasion.

The importance of this distinction in ordinary times is very possibly financial rather than economic. In any particular period, new temporary savings will be made, and old temporary savings will be withdrawn ; but so long as we can rely upon a steady excess of inflow over outflow to the pool of temporary savings, that excess (the *net* addition to temporary savings) has exactly the same economic effects as a similar amount of permanent savings would have. Thus it is neither surprising nor unnatural that many economists have got into the habit of ignoring the distinction. But even in ordinary times, the distinction between the two kinds of saving does have some important financial effects. When saving is mere postponement of consumption, the interest which may or may not be received on that saving is a small matter ; so long as the saver can expect to receive his capital back when he wants it, the difference between a high and a low rate of interest is not an important inducement. For the temporary saver security is the important thing ; a bank deposit, yielding little or no interest, but payable on demand, is for his purposes quite as convenient a vehicle for his saving as an interest-bearing bond. But to the permanent saver, interest does matter ; obviously there would be very little inducement to make permanent savings if no interest was offered. Broadly speaking, then, we may expect the temporary savings to be deposited in banks and similar depositaries (or held in cash) ; permanent savings to be invested in ways which yield an appreciable interest. This correspondence can only be rough (for on the one hand businesses will often invest in securities reserves which are only temporarily idle, and on the other hand small permanent savings may be accumulated in banks prior to investment). But clearly there will be a tendency towards correspondence ; the development of the capital market has been considerably influenced by the need for accommodating these different sorts of savings.

The reason why the distinction between temporary and permanent savings needs special attention in the field of war economics is because there is a strong probability that an abnormally large proportion of the savings made in war-time will be savings of the temporary sort. People are being exhorted to save much more than usual, and they do save more than usual, partly from patriotic motives, but partly because their opportunities for consumption on the usual scale are considerably diminished. A very considerable part of this extra saving must be sheer postponement of consumption or postponement of business expenditure ; clothes and furniture, for example, are allowed to get shabby, and the money is saved, but the intention remains of spending it later at some more convenient season. This sort of postponement is bound to occur in wartime, whatever economic policy is being followed ; but it is likely to be particularly important under a regime of price control and raw material rationing, when commodities simply cease to be available for the duration of hostilities. The natural reaction to shortages of that kind is to build up savings —*temporary* savings.

Since temporary savings are not made with the intention of deriving an income from them, but are merely held over for future spending, there is not much incentive to invest them in war loan. It may be that the principal result of war savings campaigns is to get some of the temporary savings invested in war loan ; but the amount which can be done in this direction by propaganda must be limited. A considerable proportion of the temporary savings which are being made will inevitably lie dormant in the banking system. For the moment this does not matter in the least. Whether savings are temporary or permanent, for the moment they are not spent ; thus they act as a brake on rising prices in just the same way. But the effectiveness of temporary saving in preventing inflation is only an effectiveness for the moment ; when the time comes for these savings to be spent they will exert an equally powerful pressure in the other direction.

If the war continues for a long time, the sacrifice involved in postponing any particular piece of expenditure will mount

up ; further postponement will become more and more irksome. Thus it is not impossible that some of the postponements may come to an end before the end of hostilities ; and it is certain that all the rest will be ended as soon as possible after hostilities are over. This is the way in which postponed spending creates a real problem ; it is largely responsible for the phenomenon of post-war (and end-of-war) inflation, which experience seems to suggest is a more serious economic danger than inflation as a direct result of war expenditure. During the war, or at least in the early stages, we get the useful side of temporary saving ; at that stage it is an effective agent against inflation. But later on it is very likely to act the other way ; these later consequences of temporary saving are the reason why temporary saving is so much less "good" than permanent, or fairly permanent, saving as a means of financing war.

If this war continues for another two or three years, it is not unlikely that the volume of temporary savings, which will have been accumulated by private persons and by businesses, will be equal to a large fraction of the then national income. If this mass of funds should come to be spent in a short period, at a time when no more temporary savings were forthcoming as before, the inflationary effect would be very dangerous. Economists have, I think, been too little attentive to this danger—partly because of their preoccupation with more immediate issues, partly because they are so well aware of the danger of oversaving which undoubtedly exists in more normal times. It is true that the mass of temporary savings might conceivably be made use of to combat oversaving ; if we could ensure that the temporary savings accumulated in war-time would be gradually released during the post-war years, their existence would be something to be welcomed. The trouble is that if we allow things to take their course, the release will not be gradual, but will come in a devastating flood ; what needs to be discovered is some way of damming up the flood, but not preventing the fertilising trickle.

When it is looked at from the financial point of view, the problem under discussion is that which has been traditionally

regarded as the problem of *funding*. If a large proportion of the savings made during war-time have been temporary savings, deposited in the banking system, there will correspond to these savings investments by banks and financial houses in government debt, much of it being short-term debt, since banks have a preference for that type of asset. In order to prevent the sudden withdrawal of temporary savings, it may appear, from the government's viewpoint, as if all that is needed is to convert the short-term debt into long-term debt, that is to say, to fund. But if this funding were carried through simply by putting pressure on the banks to convert their Treasury bills and Treasury deposits into war loan, the problem would not be solved at all. For the banks would still be subject to the same claims from their depositors ; if they could not meet these claims by cashing in on their quick assets, they would have to meet them by borrowing from the Bank of England—in effect that means from the Government. The issue is not one between the Government and the banks ; it is an issue between the Government and the banks on the one hand, and the general public on the other. What will be needed is to persuade the public to convert its temporary savings (in bank deposits) into permanent savings (in war loan); and that cannot be done by any arrangement to which the Government and the banks are the only parties.

To attempt the funding of short-term debt by mere pressure on the banking system would therefore be futile ; but it does not appear that the efforts to fund made after past wars were actually so futile as that. The funding loans issued in 1919, for example, were issued on very favourable terms, at effective rates of interest which rose to more than 5%. They did therefore offer a considerable inducement for the conversion of temporary savings into permanent savings, and it is probable that the inducement had some effect. It was only because of the high rates of interest which ruled in 1919 that the funding carried out in that year was a sensible operation ; yet the problem which that funding attempted to deal with was a real problem, a problem which will be met with on another occasion.

What alternative methods for dealing with the release of temporary savings after the present war are likely to be available? As far as I can see, only three suggestions have been put forward, and none of them is very convincing. Some people would like us to believe that if only we tax ourselves heavily enough while the war is proceeding, we can avoid the difficulty. But that is simply not the case; for while the war is proceeding, the temporary savings are genuine savings, so that a tax policy aimed at preventing them from arising would be actually deflationary. This is quite impracticable. Another, more promising, alternative is to keep the war controls in being for some time after the war is over, so that their gradual removal will automatically slow up the rate at which spending power can become effective. Theoretically, this is no doubt a workable solution; in practice, the feasibility of maintaining effective controls at a time when the incentive to evade is at a maximum, when administrative staffs are thinking about other jobs, and when political pressure is bound to be in favour of relaxation, must be doubted.[1] No doubt this method will have to be used; the question is whether it will be sufficient. The third possible alternative is a Capital Levy. I have discussed this elsewhere;[2] the conclusion to which I felt bound to come as a result of examining both the proposals for a Capital Levy after the last war, and the experience of Capital Levies in other countries, is that a Capital Levy is very little use for the problem we are considering, because it is too slow. The damage may well be done before the Capital Levy becomes operative, and the rapid enforcement of a Capital Levy in really inflationary conditions is almost impossible. Methods might well be devised for overcoming these difficulties, but they would have to be very clever.

[1] The following description of Germany's experience in the last war is rather apposite. "In the beginning there was real and widespread enthusiasm for this seemingly new economic system of war socialism . . . . . but in the last years of the war even the socialists used the slogan of war socialism only in contemptous quotation marks . . .The police ordinances for rationing, for price fixing and for the prescribed use of goods were gradually contravened to an extent which can be compared only with the disregard of prohibition in the days before repeal." A. Feiler, Conscription of Capital (in *Social Research,* February, 1941, p.20).

[2] Hicks and Rostas, *The Taxation of War Wealth,* especially pp. 199-200.

I am myself coming round to the view that it will at least be very difficult to achieve the necessary packing-away of temporary savings into permanent savings without allowing some rise in interest rates. The kind of rise which may be necessary should however be made quite clear. There is no case at all for the sort of rise in short-term rates which took place in the last war, and which caused so much trouble. Everything possible should be done to prevent it occurring. Short-term interest has no function in war-time, except as a means of support for the banking system ; there does not seem to be any sufficient reason why the banks should not support themselves by making charges to their depositors for the services they render to them, instead of transferring these costs to be borne on the national budget. Nor again should the government commit itself to the payment of high rates of interest on loans for really long periods. The important thing is to get savings packed away until some years after the end of the war ; a time will very probably come, as soon as the post-war situation has begun to settle itself, when the whole problem will lose its urgency. Nothing should be done to prevent conversion to lower rates of interest when that stage is reached. What I am anxious to maintain is that there is a better case for allowing some rise in the rate of interest on medium-term borrowing than is usually admitted nowadays. The period of the loan would have to be long enough to offer a reasonable chance of tiding over post-war disturbances, and also to give the private savers and business interests who might subscribe the sense of making a genuine investment. Five or seven years would probably be sufficient. We may be able to avoid the necessity for giving special inducements for loans of this sort ; but in order to do so, we shall have to make a better job of getting savings packed away into war loan by means of National Savings Movements than we are doing at present.

J. R. Hicks

Economic Progress

Mr. Clark[1] gauges a country's economic progress by the increase in real income per member of gainfully occupied population, with some allowance for the inequality in distribution of income by size and for instability of income over time. Conditions of economic progress, as thus defined, are studied by establishing income per worker for a number of countries ; observing its rate of growth over long periods ; analyzing changes in productivity of labor in various groups of industries ; gauging the importance of capital ; and so on through the various breakdowns of national income for a variety of countries and over a wide range of time.

This view of economic progress may be open to the charge that it is too narrow, consciously omitting or implicitly neglecting factors not measurable in terms of money, yet of the utmost importance to the welfare or productivity contents of any social organization ; or that it claims too much, since even economic welfare may not be comparable between one country and the next or between historical periods. Mr. Clark is undaunted by either charge : he strongly believes that economists should attend to their province, leaving scholars in other disciplines to attend to the other factors in social progress ; and he believes just as strongly that interspatial and intertemporal comparisons of economic welfare and progress are both feasible and indispensable for dealing with questions with which economics as a useful science should be concerned. It is his faith in the adequacy of the purely economic approach and the efficiency of quantitative comparisons that leads Mr. Clark to move mountains of statistics.

And mountains they are indeed. The general plan of the book is to proceed from international comparisons of real income per worker, both during a recent decade (1925-34) and in its development over most of the last century, to an analysis of the industrial-occupational framework of various countries and the contribution of the various industries to

[1] *The Conditions of Economic Progress.* By Colin Clark, Macmillan, London, 1940. (Pp. xii + 504).

national income per worker. Following a detailed analysis of industrial sources and intra-industry productivity of labor, briefer consideration is given to : growth of capital in its bearing upon growth of the final product ; levels of and changes in inequality in the distribution of income by size among individuals ; changes in the pattern of ultimate consumption ; terms of exchange among countries ; and the relation between investment and income. Within each subdivision of this wide area, an attempt is made to mobilize all available data on the subject, with plentiful references to sources and brief descriptions of the treatment to which the data were subjected by the author. The result is a statistical encyclopedia of no small reference value on the subject of national income.

One might review Mr. Clark's book as a reference volume of measures of economic progress ; commend it for its scope and the pains taken by the author to piece out inadequate evidence or introduce comparability where none existed before ; and then, proceed according to immemorial tradition of reviewers, to list sins of omission and commission. For the country most familiar to me, the United States, Mr. Clark omits reference to several important publications, such *e.g.* as Mr. William H. Lough's volume on *High-Level Consumption* (New York, 1935), which presents the best treatment of changes in patterns of ultimate consumption in this country ; and the critical review by Mr. Arthur F. Burns of the Brookings studies of income and economic progress (in the Quarterly Journal of Economics, May, 1936) which would have helped Mr. Clark to interpret properly the Brookings measures of industrial capacity and of distribution of income by size. Such omissions are, perhaps, to be expected in any individual's efforts to cover comprehensively a literature over a wide area in a number of countries. But sins of commission are not so easily explained away. One wonders why Mr. Clark insists upon relating real income to the number of gainfully occupied or working population rather than to total population (the latter perhaps reduced to equivalent consuming units). Obviously, if income is to measure economic welfare, rather than productivity, the

countrywide totals should be related to the number of consuming units. And while on page 32 Mr. Clark recognizes that "in different parts of the world the ratio of dependents to workers varies considerably, and figures of average income produced per head give a misleading impression," yet he proceeds to use per worker figures in international comparisons interpreted in welfare terms ; and on page 159 he repeatedly refers to real income per gainfully occupied person as the standard of living.

One may also question the validity of measuring the purchasing power of incomes in units of goods and services purchasable for $1 in the U.S.A. during 1925-34. The result is obviously a bias in favor of those countries where the basket of final goods was most similar to that of the U.S.A. during that decade, a bias obviously affecting inter-country comparisons. The effect of this procedure upon measures extending over a long period of time is even more appreciable since the available measures of the cost of living in the U.S.A. for both 1925-34 and earlier decades are urban costs of living (or a retail price index) ; and the result neglects completely the increasing price level of finished goods for the country as a whole due to the shift of consumption from the less expensive rural to the more expensive urban areas, as well as from one basket of goods to another.

But Mr. Clark does not intend the volume as a statistical encyclopedia : his basic aim is to carry the analysis to a point where significant conclusions as to conditions of economic progress emerge. And to attain this purpose in the face of paucity of data, it may seem justifiable to overlook minor inadequacies and to incur some sins of commission (only in cases, however, where absence of data provides an excuse). It would be fairer, therefore, to deal with Mr. Clark's substantive conclusions.

These conclusions are so numerous and so well summarized by Mr. Clark himself in pages 1-16 of his book, that it would be neither possible nor necessary to recapitulate them here, They range from the more obvious statements concerning differences in income levels between agricultural and industrial

countries or those concerning the shift over time in favor of urban and non-manual industries to other more refined results of analysis relating to the exact form in which the law of increasing returns manifests itself in industries ; the productivity of capital and labor measured by Professor Douglass' technique ; changes in inequality in distribution of income by size as measured by the Paretian α ; and measures of the multiplier based upon comparisons of changes in investment and income.

A scrutiny of those sections of the book dealing with the less obvious conclusions leads me, in a disturbing number of cases, to disagree with Mr. Clark's interpretation of the figures ; and to the impression that Mr. Clark has failed to analyze the data with techniques sufficiently adequate to warrant his conclusion. Several examples may illustrate my point.

(1) In the chapter dealing with growth of real income per worker, Mr. Clark concludes "one of the most striking features" to be the fact that "real income per head in the U.S.A. and Canada, which was rapidly rising up to about 1900, had since that date been virtually stationary" (summary, p.4). And in attempting to explain this result, Mr. Clark says : "The explanation is easily found when we examine the trend of real income per head of the bread-winning population and real income per person *in work*. The latter figure has continued to advance. It has shown an uninterrupted and slightly accelerating advance, while a steadily increasing proportion of the working population has become unemployed" (summary p.6). An inspection of the chart for the U.S.A. on page 155 upon which this conclusion is based, reveals, however, that real income per head rose from about 1400 units in 1900 (or a lower level in 1914) to about 1600 units in 1929, and that the stability of the level over the whole period 1900-1937 is due exclusively to the effect of the world depression, 1929-32. Presumably, relative unemployment also failed to increase until after 1929. Of course the depression may have secular significance ; but it appears misleading to speak of secular stagnation after 1900, without at all referring to the rise from 1914 to 1929. Per worker product in 1940 may well equal or

exceed that in 1929 ; and Mr. Clark's conclusion could, with the addition of just a few years, be rephrased to read that in the U.S.A. the rise in real product per worker between 1914 and 1940 was relatively greater than that between 1890 and 1914.

(2) In discussing distribution of income by size among individuals, Mr. Clark concludes that "in the U.S.A. the general trend has been towards greater equality of income, interrupted by a sharp contrary movement between 1921 and 1929" (p.14). The basis for this conclusion are the estimates of the Brookings Institution and data summarized by Mr. Rufus A. Tucker, both bodies of data treating of income inclusive of gains and losses on sales of capital assets and both (with the exception of the Brookings estimate for 1929) relating only to that small part of the income receiving population that files Federal income tax returns. Even beyond these crucial qualifications, there are two defects in the data as a basis for historical generalization : (a) reliable income tax returns are not available in the U.S.A. prior to 1918 ; (b) there has been considerable criticism of and disagreement with the Brookings estimates relating to the 1920's which have not been widely accepted by statisticians in this country. Indeed, at present there are no data from which any reliable inferences concerning temporal changes in inequality of income distribution may be made for this country. Mr. Clark might have been made more hesitant in advancing unwarranted conclusions by a more careful scrutiny of Dr. F. R. Macaulay's analysis in Volume II of the National Bureau of Economic Research report on *Income in the United States* (New York, 1922) ; by more attention to the criticism of the Brookings Institution's inferences concerning trends in inequality of income in Dr. Warburton's article in the Journal of Political Economy, February, 1935 ; and a more critical treatment of Mr. Tucker's article upon which he relies so heavily.

(3) In the discussion of the multiplier (Chapter XV), Mr. Clark first establishes the marginal propensity to save in the U.S. on the basis of family budget studies, deriving a multiplier of 3.11. He then proceeds to establish the regression

on investment (capital formation) to national income, with a straight regression line of a slope of 3.08. And concludes that the empirical measures derived from these two different sources check each other and yield a multiplier in the neighbourhood of 3.

But further scrutiny shows that the two procedures are not comparable and the similarity of results fortuitous. The data relating to shares of income saved at various income levels comprise savings of individuals and families alone and are based upon family income inclusive of gains and losses on sale of capital assets. Since the estimates relate to 1929, a year in which gains on sales of assets were large, the resulting measure of propensity to save is grossly exaggerated. Real investment, on the other hand, does not and should not include illusory gains on sales of capital assets. The reason why the multiplier obtained from comparison of investment with national income is so low, *i.e.* low enough to match the inflated propensity to save, is twofold : (a) real investment represents savings of corporations and of governments, in addition to savings of individuals and families ; (b) instead of *net* investment, Mr. Clark takes *gross*, for no better reason than that net investment "sometimes becomes negative and is subject to a certain arbitrariness in the estimation of depreciation" (p.476). Were measures of net investment taken, an item truly comparable to net national income, the multiplier would be much higher than that shown by Mr. Clark ; and more important, it would fluctuate greatly from year to year (even if only years with positive net investment were taken) so that the significance of a regression line with a constant slope would be considerably qualified.

These few cases far from cover the range of Mr. Clark's discussion ; and it would be unfair to infer that his other conclusions are subject to serious strictures and doubts of the type raised above. And yet the results of the scrutiny with regard to data with which this reviewer is most familiar lead to the conclusion that the commendable and valuable effort in assembling the data and putting them into comparable form is far from matched by a careful consideration of their

limitations and of the variety of interpretation to which they are subject. Thus even one who is in sympathy with the author's basic position concerning the adequacy of a purely economic approach and the feasibility of quantitative measures of economic progress, cannot accept Mr. Clark's conclusions without careful scrutiny of the data from which they have been derived and a re-checking of the procedures used. This, of course, reduces materially the value of the book to a critical student.

Finally, it is not unfair to ask whether this facility in drawing debatable conclusions is not based at bottom upon too naive a faith in the adequacy of a purely economic approach and in the efficiency of quantitative comparisons. Perhaps, were Mr. Clark more ready to admit the need of supplementing the economic approach by a consideration of other factors, even the purely economic analysis would have been more complete : such consideration would surely have lead to a realization of the inadequacy of a single figure in measuring the economic progress of a country. A broader view might have stimulated him to supplement his measures of real product per worker by series of real product per capita or per consuming unit or by some indirect measures of economic welfare ; and he might have been lead to consider more carefully differences in the standard of living in the various countries. Greater attention to theoretical analysis might have pointed to the interdependence of the various parts of a country's or the world's economic system, and to the probable conclusion that high level of income in some industries or some countries is possible only in conjunction with and because of low levels of income and productivity in other industries and other countries. Possibly a smaller number of substantive conclusions would result. But the validity of the measures assembled and of their interpretation might have been more adequately established ; and Mr. Clark's efforts would have then provided a more secure foundation for other empirically minded students to build upon.

Simon Kuznets

University of Pennsylvania and
National Bureau of Economic Research.

The Failure of the Pigs Marketing Scheme

I

Of the various Marketing Schemes established under the Agricultural Marketing Acts of 1931 and 1933, that designed to ensure the "orderly marketing" of bacon pigs had the most chequered career. It seems to have achieved most of its principal aims; the pig population of Great Britain has risen markedly since the introduction of the Scheme; its quality improved, and the cyclical and seasonal fluctuations of production have been reduced. Yet the Scheme has failed to receive the support of the pig producers of the country, and, despite several amendments and a drastic reorganisation, was rapidly approaching complete failure in August, 1939.[1]

The income derived from pigs represents about 1/9th of the gross value of the agricultural output of England and Wales, and this in itself lends some importance to the subject. Its significance is however enhanced by other considerations. It will be attempted to show that the generally accepted diagnosis of the situation is not correct. This view, of which numerous examples can be found is well illustrated by a quotation from a recent issue of the *Agricultural Register*: "The problems of the Scheme arise far more from the competition of the uncontrolled market for fresh pork than from anything inherent in the scheme itself." Reasons will be given below for questioning the validity of this contention. Moreover it will be argued that the real cause of the failure is one the relevance of which is by no means confined to the pig industry, but is of more general interest.

II

Throughout the 1920's the state of the pig industry caused a considerable amount of dissatisfaction among observers. Contrary to other branches of livestock, the pig population

[1] The Scheme was suspended very shortly after the outbreak of the war, and any speculation about its future is purely conjectural. The causes of its breakdown present, however, certain aspects of wider interest.

had remained stationary since the 1880's and the expanding demand for pig-meat was satisfied by imported supplies. While, however, the pig population was stationary over a long period, short period fluctuations, both seasonal and cyclical, were violent ; deliveries to factories in December were about one-third of those of March or April, while weekly deliveries at the bottom of the 4-yearly pig cycle rarely exceeded 50 per cent. of those of the peak years. That these fluctuations interfered with regular and efficient working of the curing factories was widely (and correctly) recognised. Curers were unable to contract for large and regular supplies, which made wholesalers turn to imported, mainly Danish, produce.

In addition to the complaints about irregular deliveries, the factories expressed dissatisfaction over the chronic shortage of supplies with which most of them were faced. They were short of supplies not only seasonally and cyclically but chronically, and factories working at full capacity were rare, even at the peak of the pig cycle. These complaints were echoed by various Reports of the Ministry of Agriculture,[1] and were evidently accepted as one of the difficulties of the industry. In none of the publications dealing with the subject is it mentioned that the right remedy for a shortage of supplies is an offer of higher prices.[2] In such circumstances there exists a strong presumption of a tacit agreement against price raising ; and in fact by 1930 about half the bacon-curing capacity of the country was controlled by one firm and its subsidiaries. This combine though it attracted much less attention than United Dairies was, if anything, stronger than the Milk Combine. Inadequate supplies gave the curers the

[1] *Report on the Marketing of Pigs in England and Wales.* Ministry of Agriculture, Economic Series No. 12, 1926. *Report on the Pork and Bacon Trades*, Economic Series, No. 17, 1928.

[2] When it was suggested by the present writer to an official of the Bacon Development Board that supplies should be increased by offering a higher price, it was replied that the price of bacon is fixed by the imported product, so that the curer only exists on his margin. The fallacy here should be obvious ; there must be a more than adequate margin per unit, or factories could not remain in existence on their low level of output in relation to capacity. If factories were to bid up their price, then there would certainly be a lower margin per unit, but they could operate at, or near, capacity and so suffer no loss.

opportunity to advance the argument that, owing to their overhead charges per unit, they were unable to pay producers as high a price as would be rendered possible by a reduction in the number of factories. The combination of the "tacit agreement" and the "overhead fallacy" was to have a profound influence on the fate of the Pigs Marketing Scheme.

III

After the onset of the 1929 slump (which coincided with the downward phase of pig prices in the four-year cycle), prices of both bacon and pork pigs fell rapidly, and were below the pre-war level by 1932. In that year a Reorganisation Commission was appointed under the Agricultural Marketing Act of 1931 to report on the situation, and it was on their *Report*[1] that the Pigs and Bacon Marketing Schemes were established.

It is not proposed to discuss the *Report* here ; as is well-known, it confined itself to the consideration of the bacon pig section of the pig industry, advocated the stabilisation of total market supplies at 10.67 million cwt. per annum, of which the home supply should be confined to pigs delivered against contracts, the terms of which were to be fixed by negotiation between the Pigs Marketing Board and the Bacon Marketing Board, representing producers and curers respectively. The Commission accepted it as axiomatic that in addition to the producers' Board there should also be established a processors' organisation, though it is not easy to see why it should not have contented itself with a Pigs Marketing Board, fixing minimum prices and leaving the curers to compete for supplies.

Two points should be noted about the contract price. The price negotiated for pigs of a given weight or quality was to be the only lawful price, and it was not intended to allow any curer to pay either more or less than the negotiated price, which was then both a maximum and a minimum. Secondly, the price was to be "ex farm." Without a clear realisation of these points the subsequent troubles of the Pigs Scheme cannot be understood.

[1] *Report of the Reorganisation Commission on Pigs and Pig Products.* Ministry of Agriculture, Economic Series, No. 37, 1932.

The Commission accepted the view that the high overhead costs of the factories were responsible for the low prices received by producers and was looking forward to an early introduction of a licensing system to reduce their number. Paradoxically enough, at the same time the Commission also suggested imposition of quotas on individual factories, apparently unaware that this was diametrically opposed to their licensing proposals.[1]

The Scheme (or rather Schemes since *de jure* the Pigs and Bacon Schemes are separate) came into operation in November, 1933, and at first sight with considerable initial success. The pig population which according to the pig cycle should have shown a falling tendency rose markedly ; its quality improved as a result of the introduction of payment varying with quality; and there was some reduction in seasonal variations. Yet certain difficulties soon became evident. Supplies of pigs were very "inequitably distributed" to use the phrase which became so important in subsequent years ; some factories, especially those near producing areas worked at, or near capacity, while others received very small supplies. To remedy this, the Pigs Board first resorted to exhortation, and curers who had good supplies were urged to hand some of these over to their needier brethren. Another remedial measure was found in the "group contract" ; small scale producers contracted through a group agent with the Pigs Marketing Board which thus obtained a small pool of pigs, which was allotted to curers with inadequate supplies. In 1934 the Bacon Board obtained powers to impose quotas on individual factories, though this power was not used before 1936. It should be added that throughout 1934 new factories were being built fairly rapidly. The number of pigs offered against the 1935 contracts increased but not in proportion to the increase in the pig population. The Bacon Board considered that the total

[1] Characteristically enough, the *Journal of the Ministry of Agriculture*, discussing the proposals, pointed out that it was not intended that the Pigs Board "should encroach upon the sphere of the bacon curer, or engage in trade to any considerable extent" ; this view found its enbodiment in the striking proviso that the Pigs Board could only cure bacon from pigs which have been offered to curers at contract prices, but have been rejected by them.

number was inadequate (no mention was made of a higher contract price as a remedy), and that it was inequitably distributed. It became evident by now that a number of factories offered more than the contract price or evaded it by such devices as "grading up" the pigs offered to them; these factories and those near producing areas were well supplied with pigs, while those "scrupulously observing" the national price were empty. The Pigs Board was put into the ludicrous position of having to protest against these practices, and to discourage curers from paying higher prices to their constituents. In addition to exhortation and the distribution of group contract pigs to needy curers, the "supplementary contract" was used to improve the position. The closing date of contracts was extended several times, and the supplementary contracts entered into by producers and curers during these periods were only valid if the curer had less than 70 per cent. of his "stated requirements," calculated as a percentage of his curing capacity.

In 1935, the Bacon Development Board came into operation and was to concern itself mainly with efficiency measures. This was primarily interpreted as meaning licensing of factories. Provisionally all existing factories received licences; newcomers, however, were all refused.

In that year the open market price of bacon pigs (there remained an open market for pork pigs of course, and also for bacon pigs in so far as small curers and butchers were outside the scope of the scheme) began to rise above the contract price for pigs of similar grade. This of course caused much dissatisfaction among contracting producers.

Negotiations for the 1936 contract were protracted. The Bacon Marketing Board insisted on adequate and equitable supplies. They were pressing for a contract system, under which all pig producers would contract with the Pigs Marketing Board instead of with individual curers, and the Board would then distribute the pigs among curers in proportion to their curing capacity. Failing this the Bacon Marketing Board insisted on their right to void the contract if an insufficient

number of pigs was forthcoming, and that any curer, having received less than 72 per cent. of his requirements under the contract should be allowed to purchase the balance on the open market. These last two demands were accepted by the Pigs Marketing Board, and as in fact a number of curers had less than 72 per cent. of their requirements, open market buying was resorted to with the result that the open market price rose definitely above the contract price (see Table at the end of this note). At the Annual Meeting of the Pigs Marketing Board, dissatisfaction was loudly voiced, and the Chairman promised that in next year's contract no guarantee of minimum supplies would be given, and further asserted that the open market price would soon be below the contract price. However, throughout 1936 the reverse relation prevailed.

Negotiation for the 1937 started early in 1936, and it soon became evident that agreement would be difficult, if not impossible, to reach. Arbitration was resorted to, which gave the Bacon Marketing Board the right to void the contract if less than 2.2 million pigs were forthcoming. As in spite of all efforts of the Pigs Marketing Board this number was not forthcoming,[1] the curers voided the contract, and thus the most essential element of the Pigs Marketing Scheme disappeared. The regulation of imports by quota and payment according to quality remained in force ; more significant, the Bacon Board now imposed quotas on individual factories, and justified this procedure in their Annual Report: "It is realised that registered curers are selling in competition and if some are working at 100 per cent. of their capacity and others at 50 per cent. the latter are placed in an impossible position." The Bacon Development Board continued their task of refusing licences to newcomers and proudly pointed out that but for the action of the Board an enormous amount of new capacity would have come into existence. As some of the applications refused were those for Farmers' Co-operative Factories, the Scheme

[1] The chief reason, of course, was the belief of farmers that by selling their pigs on the open market they would receive a higher price. A secondary reason was the rise in feeding-stuff prices which occurred in the second half of 1936.

(or rather what remained of it) became even more unpopular in farming circles.

Throughout 1937 negotiations for reorganisation continued. In July, 1937, the Minister of Agriculture pointed out in the House of Commons that "if the industry were founded on a small number of efficient factories provided with adequate and regular supplies of pigs of good quality and conformation, sufficient economies could be secured in the cost of curing to enable the industry to be maintained during periods of high feeding-stuff prices." Exactly a year after this pronouncement, the Bacon Industry Act was passed, which completely overhauled the Scheme, and gave statutory approval to the various fallacies underlying it. The Bacon Development Board was reconstructed, and the Pigs and Bacon Boards were to work under the direction of the Development Board, which could over-ride their decisions and had powers of arbitration in case of disagreement between the Pigs and Bacon Boards. The licensing powers were maintained and extended ; Part III of the Act is devoted to various provisions for eliminating excess capacity, so as to achieve the ends set out by the Minister of Agriculture. But again, Part V deals with the imposition of quotas on individual factories, so once more upholding the two contradictory principles. The Treasury guaranteed a minimum price to the producer and a minimum margin to the curer. There was to be a basic price of 12*s*. 6*d*. a score when the cost of the standard ration was 8*s*. 6*d*. ; excess cost would be covered by a Treasury subsidy, while any reduction would involve payments from producers to the Treasury. Further, if bacon prices were to fall below 94*s*. 9*d*.[1] curers would be subsidised by the State, and, again, if they were to rise above that figure, the curer would pay the difference to the Treasury. The Treasury would gain, therefore, both on a fall in meal prices and on a rise in bacon prices, while producers were guaranteed a price for their pigs based on meal price and

[1] This was for the first period ; in the second there was to be a deduction of one shilling, and in the third a further decrease of two shillings per cwt. Similarly the basic price for producers decreased to 12*s*. 5*d*. and 12*s*. 3*d*. per score.

curers were guaranteed a margin between pig and bacon prices. The first contract under the new scheme was to run from December, 1938, to November, 1939. Again negotiations were difficult and protracted. The curers insisted on "equitable distribution" and contended that if contracts were unevenly distributed, the Pigs Board should re-allocate supplies, and if insufficient pigs were forthcoming, curers should be entitled to purchase on the open market. The Development Board decided in favour of the curers.

The Pigs Marketing Board conducted an intensive propaganda in favour of the contract which now guaranteed farmers a profitable price against all unfavourable market changes ; and this time the Chairman emphasised in one of his addresses that the open market price would certainly be below the contract price

Yet once again the total number of pigs fell far below expectation, they were insufficient to meet curers' requirements and were "inequitably distributed." It should be noted that there were several types of contract, and those in which no curer was named but were "open" carried a premium over those in which the producer named the curer to whom he wanted his pigs to be delivered. Nevertheless, 77 per cent. of the pigs were on named contracts, and the Pigs Marketing Board had to re-allocate contracts which caused a storm of protest among the producers whose pigs were re-allocated. A case which aroused particularly intense discontent was that of the St. Edmundsbury (Suffolk) Co-operative Factory, a proportion of whose pigs were transferred to Wiltshire. In this case the farmers, apart from the blow delivered to their idea of loyalty to their own factory, also lost the bonus paid for deliveries to Co-operative Factories, and part of their profits from the factory's operation.

As however supplies were inadequate open market buying had to be permitted, with the result that the open market price rose promptly above the Scheme price ; dissatisfaction was by now so intense that the Pig Marketing Board's Annual Meeting held in March, 1939, had to be abandoned, and a second

meeting, in July, met with the same fate. Under such circumstances it is hardly surprising that the contract issued for 1940 hardly met with any response, and the Scheme was rapidly facing dissolution when the War broke out.

IV

What needs emphasising is that the Scheme did not come to grief because of the uncontrolled nature of the pork market. It is true, that throughout its operation pork pigs fetched a higher price than bacon pigs ; this however is no new phenomenon (see Table) and is furthermore inevitable in view of the substantially higher cost of pork pig production. The Table brings out clearly that porkers fetched substantially higher prices than baconers before the Boards were set up ; indeed the gap narrowed, rather than widened during the years the Scheme was in operation ; in 1936 (the year before the Scheme broke down) the premium on pork pigs was lower than it had been for a long time. On the other hand, there appeared the premium on open market (as against contract) prices for bacon pigs ; and this premium eventually reached truly remarkable proportions. There exists at any rate a strong presumption that the trouble was caused not so much by the profitability of pork pig production compared with that of bacon pigs, but by the distinctly better prices obtainable for the same type of pig in the open market over the price prescribed in the contract. With the present demand, a porker has to be slaughtered at the age of 4-5 months against 7-8 months for baconers and its cost of production is consequently higher. Incidentally between 1932 and 1938 the price of bacon pigs has risen more than that of pork pigs, from 63 to 84, while that of porkers rose from 65 to 83 (1927-29 = 100), which does not indicate that producers of pork pigs fared better under the Scheme than the producers of bacon pigs. What did cause dissatisfaction and consequently disruptive tendencies was that the producer of bacon pigs who stayed outside the contract was able to realise substantially better prices (by as much as 10-15 shillings per pig) than the contracting producer. This was the result of the complete abandonment

of price competition among curers under the contract, while it prevailed even if in a stifled form outside it. This was intensified by the growing appreciation in certain farming circles at any rate that the most important provisions of the Scheme really benefited certain curing interests—the licensing system, the imposition of quotas, and the re-allocation of contracts. The N.F.U., for instance, pointed out that responsibility to remain in business should rest on the attraction "the curer's factory offered to producers as a satisfactory outlet for their produce." The fact that the Scheme had degenerated into a curer's monopoly became particularly evident in 1937-38 when there was no contract, but the licensing provisions and the quotas on individual factories were retained. Again, three parts out of five[1] of the Bacon Industry Act of 1938 are devoted to restriction of competition among curers in one form or other. The main benefits which the producer has derived are due to stiff import restriction and payment by grades[2], neither of which is inherent in the Scheme.

V

It has frequently been noticed how the establishment of a monopoly tends to give rise to further restriction of competition, in other words, that "monopoly breeds monopoly." In the present case, the secondary monopoly has been more successful than the primary, and eventually secured its disruption. The Reorganisation Commission accomplished its task too well—by proposing two monopolies instead of one.

It is also worth noticing how certain fallacies, repeated sufficiently frequently, receive axiomatic acceptance. Not only have the two mutually inconsistent principles of licensing and individual quotas been embodied in Act of Parliament, but have apparently become so firmly entrenched in the mind of the Bacon Development Board that its whole policy was based on putting them into practice. This makes it important to appreciate clearly what were the real causes of the troubles of the Pigs Marketing Scheme.

P. T. BAUER

[1] There is also a sixth, dealing with unimportant miscellanea.
[2] And since 1938, a guaranteed minimum price.

BACON & PORK PIG PRICES (SHILLINGS & PENCE PER SCORE DEADWEIGHT)

	BACONERS				PORKERS		
Year	A. Contract (Shillings)	B. Open Market (Shillings)	C. Difference between B. & A. (Pence)	C as percentage of A.	D. (Shillings)	Difference between D. & B. (Pence)	As percentage of B.
1930	—	16.6	—	—	19.0	28	14
1931	—	11.10	—	—	14.3	29	20
1932	—	10.2	—	—	11.7	17	14
1933	—	11.3	—	—	12.9	18	13
1934	11.11	12.3	4	3	13.9	18	12
1935	11.2	11.3	1	1	12.7	16	12
1936	11.5	12.5	12	9	13.3	10	7
1937	—	13.2	—	—	14.2	12	7
1938	—	13.3	—	—	14.8	17	11
1939 (6 months)	11.8 (approx.)	13.5	21	15	15.1	20	12

Reviews

The Economic History of Steel Making 1867-1939. *A Study in Competition*. By D. L. BURN. Cambridge University Press. (Pp. 548. 27*s*. 6*d*.).

It may be said at once that this history of steel making presents an authoritative and searching account of the essential elements which make up the pattern of British iron and steel making from 1867 to the present time. Its framework is chronological but this is not permitted to mean subjection to the function of simply making a record. There is record, in abundance, but there is more than record. Within the framework of sequences of development in time there are packed close studies of an analytical character which give ample play to an enviably deft grasp of the technicalities of steel making, a closely documented knowledge of international comparisons, particularly between this country and Germany, and a readiness to make the data described and analysed the basis of judgment. Though the material, frequently technological or statistical, does not lend itself to either ease of treatment or ease in reading neither the record nor the analysis which Mr. Burn presents can be regarded as grim. In part this would seem to be explained by the extraordinarily detailed grasp which the author possesses of processes, firms, and personalities and in part by his flair for the unpedestrian word and the appropriate division of the material into significant sections. While the descriptive matter and the various sectional analyses are, in their own right, important, they are given additional importance by being made the basis of a thesis, critical of the formula of administration of British iron and steel making, which appears early and is still being stressed when the book ends. This thesis, if it can be successfully compressed into a few words, is that the leaders of the industry have, almost continuously in the period covered, been overcomplacent in their adherence to a formula of locational distribution of firms and plants, with reference to both ore supplies and processes, which, suitable enough under older conditions of international

competition, became progressively a competitive handicap as iron and steel industries were built up in Germany and the United States of America in particular, where metallurgical and mechanical advance was furthered more venturesomely than in this country. This is not to argue that the British industry has lacked personalities, or been reluctant to spend, lavishly at times, upon re-equipment. Mr. Burn presents ample evidence to show that this is not his case. He can write engagingly, but, under the compulsion of his argument, a little regretfully, of the influence of Sir Lowthian Bell upon his fellow-industrialists : and he shows himself to be fully aware of the capital expenditure which firms have incurred at various dates. The argument is rather that the enterprise and the expenditure have been employed within an old formula of locational distribution and pattern of processes which has become more dangerous as time has passed, and, further, that even under the stimulus of the events of 1914-18 and just before no notable shift into cheap ore districts and no significant attempt to correct anomalies arising from excessive subdivision of processes within the different steel-producing districts were made. Mr. Burn passes in review the findings of the Sankey Committee of 1930 and the May Committee of 1937. He finds much to commend in the suggestions of the former, though it does not contain that explicit avowal of the need for locational change which he would welcome most : as to the latter he is inclined to suspect its blander pronouncements and to feel that the formula of radical change by which he himself sets store is not too likely to be induced. His case against the industry is thus a challenge continuously woven into the pattern of his description. It is not made lightly : nor is there conveyed any impression of presumptuousness. There is too much carefully chosen detail for this opinion to gain ground. Moreover he is aware of the limits of his case. He mentions the social considerations which must be involved if any locational shift from old to new centres is made. He shows the need for regarding the problem as bound up with the provision of a policy for the Depressed Areas : and finally "costs" he agrees "cannot all come down to the Corby level."

It is no disrespect to him, indeed it is the reverse, to say that one would like to see now an equally full and carefully documented book from one who did not agree with him and who could not rest until that disagreement had been given full expression. Mr. Burn would appear to have written, at one and the same time, an authoritative and indispensible history of British steel making in its international setting and a valuable tract for the times.

E. Allen

Some Disguised Blessings of the War

From the strictly economic point of view, war expenditure represents waste. Economic wellbeing takes a back-seat, and productive resources are diverted to different ends. All the same, it would be surprising if, in the general re-shuffle of economic conditions and institutions which war brings with it, some of the changes taking place were not economically beneficial, and of such a kind that we should want to preserve those war changes in the period after, rather than try to "get back to where we left off." It is with two of these beneficial changes which we should strive to preserve that this article is concerned.

First among those changes, many people would place the virtual disappearance of unemployment—at least in the form in which we knew it between 1919 and 1939. The number of persons registered at Employment Exchanges has fallen below 200,000, which is a small fraction of the figure for even a good pre-war year (1,000,000 in 1937). It must, however, be clearly realised that, while unemployment in the statistical sense of people queuing up at the Exchanges has been all but abolished, that does not necessarily mean that economic unemployment in the sense of enforced idleness has disappeared. Under Essential Work Orders and with employers 'hanging on' to their labour, employees continue to be paid and 'employed' even during short periods of enforced idleness. In fact, those complaints about idleness in factories which now fill the columns of Hansard represent largely the transformation of economic unemployment in appearance. The fact is that such idleness is partly inevitable under war planning which depends on complete 'dovetailing' in the production and transport of an almost infinite number of components and where plans have constantly to be adjusted to scientific progress, new operational experience or changes in strategic plans. It is interesting to reflect that before the war the irreducible minimum of unemployment used to be put at 3 per cent. In war time, the inevitable dislocation of transport, reduction in stocks, air raids and the increased complexity of production—bombers and tanks require

40,000 direct components—would certainly increase this percentage. On the other hand, transfer of labour has been reduced below the minimum considered possible—or desirable—in peace time. 3 per cent. of our present working population represents some 650,000 persons of whom the 180,000 registered unemployed are less than one-third. It will be seen that some 500,000 people idle in factories represent part of the 'irreducible minimum.'

But even in so far as unemployment has been transformed in appearance rather than abolished, the change-over represents enormous progress. The economic importance of unemployment in a normal pre-war year was always vastly overrated; as a direct drag on our standard of living, unemployment ranked far below inequalities of distribution and educational facilities, lack of training and vocational guidance, monopoly, the defects of 'private cost and profit' accounting and many other items. It was really the appearance of unemployment, the complete and long-term removal of the persons affected from the general body economic, the reduction of their own and their dependants' standard of living, their progressive deterioration, and the spectacular demonstration of 'poverty in the midst of plenty'—these were what made unemployment rank so high in the public mind that it came to be considered as an "acid test" of the efficiency of any economic system. The disappearance of the old forms of unemployment, therefore, is a gain which we ought to do our utmost to preserve after the war.

But shall we be *able to* preserve this gain? At this stage we are confronted by two stock arguments. The first one is that "Of course, we have abolished unemployment; but only by removing 4-5 million people from the labour market and putting them into the services and civil defence, etc." The answer to that is, in the first place, that we have also drawn into industry, from the ranks of the unemployed, the idle, the retired and housewives, a number of people about equivalent to that withdrawn; and also lengthened working hours of those within industry. Total labour supply in man-hours must now be at least 10 per cent. higher than before the war

(not lower) ; and even this leaves out of account the more intensive nature of work in war time—which has, after all, happened over a wide range.

The second argument is "Ah, but it is so very much easier to abolish unemployment in war time. There's a simple aim to plan for and the demands of the war machine are insatiable. Take these conditions away after the war—and unemployment will come back." This again is a very questionable view. That planning for war is easier than planning for peace is a widespread opinion, but it is wrong nevertheless. It was probably true when the 'weapons of war' were essentially a few simple standard goods—shells, ships, guns, wooden aeroplanes—easily produced in a limited number of large-scale factories. By now, it is probably true to say that things are the other way round : that planning the output of tanks, aeroplanes and submarines is very much more difficult than planning the output of houses, clothing, food and motor cars. The other point referring to the satiable nature of peace demand is much more serious—as long as increasing saturation is allowed to show in falling prices (or to put it more concretely as long as artificial scarcity is allowed to show in higher prices). It is, therefore, true that full employment in peace time will probably involve some method of public control of monopolies and of arrangements for special marketing of 'surplus' products through the social service system and/or public works. Some such continuation should not be beyond our powers to devise and, if we do, the 'satiability' of peace demand need not stand in the way of full employment.

On the other hand, we must not go too far in drawing conclusions from war conditions on the effort and sacrifice involved in achieving full employment. This seems to me what Professor Macgregor is in danger of doing when he writes in his article on *Actual War Influence on Reconstruction* in the first issue of 'Agenda.' "We are still able to live pretty well, well enough to show that we could afford a good deal of strictly unprofitable employment in ordinary times and still live quite well." That surely is going too far. The main reason why we

are still able to live pretty well is the running down of capital—domestic and foreign—and stocks, as well as lease-lend supplies from abroad. We are adding to our national income at least 25 per cent. by drawing on capital. If that were not so, not only should we not be able to "live pretty well" but we should be reduced to something near a subsistence minimum—or war production would suffer. This drawing on our capital is surely a temporary condition which will not obtain after the war. On the contrary, the rebuilding of capital, stocks and foreign investments, and possibly loans to Europe, China and India will be first charges on the post-war national income. You cannot prove too much from conditions in war time.[1]

The second type of beneficial war changes which I propose to discuss is the movement towards greater *equality*. Economists nowadays tend to break down the sharp distinction between production and distribution. A distribution which is too unequal not only disturbs production through 'under-consumption' and 'over-saving'—unless modified by taxation—it also makes nonsense of the 'guidance of production by needs' and the 'controlling power of demand' of the economic text-books. It causes the wrong sorts of goods to be produced, lowers efficiency of labour through the paralysing effects of poverty, and makes for a biased selection of managers, scientists and even skilled workers through a difference in educational facilities. Any move in the direction of greater equality which does not harm production is an economic blessing.

The war, in the first place, tends to equalise money incomes. The unemployed man is either in the forces or back at work and in both cases his income has increased. The old-age pensioner is back at work. Average wage earnings have risen by some 40 per cent. and work is more regular and secure. Wives, daughters and mothers are now in work and add to the family income. Even unskilled workers in the Services may have maintained their income—due allowance being made for tax-free income in kind—where they have a big family and

[1] I want to make it clear that in spite of the above criticism, Professor Macgregor's article is of great interest and importance. Every student of reconstruction problems ought to read it.

draw N.C.O. or proficiency pay. If they have a small family they will have increased their income where the wife is now in full-time work. On the other hand, high incomes are often contractually fixed for a long time ahead ; in some cases they have been reduced. Among the sources of large incomes, net profits have at the very least not increased : the *Economist* index has fallen by some 10-15 per cent., but in view of the increased depreciation allowances, the 20 per cent. 'drawback' on E.P.T. and the possibility of repayment of war damage contribution after the war it does not seem safe to place too much reliance on the degree of decline. Dividend disbursements have declined by 20 per cent. ; some income from foreign investment has entirely ceased ; many types of income from land and house property have declined.

But much more important in this process of equalisation is the incidence of taxation which has been so extraordinarily increased since the outbreak of war. 30 per cent. of the National Income is now taken in taxation. The main pillar of the system is the direct taxation of incomes which is now sufficiently progressive and high to create something like an upper limit for incomes at around £3,000. If the social service system has created a 'floor' for incomes, the taxation system has now created a ceiling. Variations in income are confined to the intermediate range. It is quite possible that we shall progress on the road towards equality by a process of gradual compression of this intermediate range, from both ends.

It is perhaps not sufficiently realised that, for high investment incomes, direct taxation alone (if we include yearly provision on the insurance principle for death duties payable at the income receiver's death) takes more that 100 per cent. of the total income. This means that even if the recipients of such incomes could develop to the full the fine art of living on nothing their capital would still decline. Direct taxation *plus* death duties at the existing level are bound to produce a very considerable re-distribution of wealth in the direction of greater equality. In addition, the average value of Stock Exchange securities—that major form in which capital is

held by large owners[1]—has fallen by about 20 per cent. since the outbreak of war.

At the other end of the scale we see a steady accumulation of wealth held by the "small men." The growth of house ownership among workers was one of the striking trends in the pre-war period. During the Ministry of Labour enquiry into working-class expenditure which began in 1937, it was found that 18 per cent. of the 10,000 families in the sample owned their own houses. During the two years up to the war this figure must have further increased. The trend towards the growth of small savings was well marked even before the war.[2] The war, with its limited outlets for spending, has accelerated the movement enormously. Among the 9-10 million working-class families there are already 5½ million income-tax payers, all of whom are now accumulating post-war credits. The same applies to about 5 million non-commissioned members of the Services and Civil Defence workers. The number of Post Office Savings Banks accounts—to mention only this one source of small savings—has increased since the outbreak of war from about 12 to 15 millions. This means that on the average there is more than one depositor in each family. Moreover, the average deposit per savings book has risen from £50 to £80. Deposits are now rising at a rate of £5 millions per week, or £5 p.a. per head of the whole population. And this represents only a fraction of small savings. If this movement goes on for several years at an increasing rate—as outlets for spending are further reduced—the resulting re-distribution in the ownership of wealth will be substantial.

If we add to this that the 'large savings,' which in the weekly accounts of the National Savings Committee figure more prominently than small savings, really represent largely the liquidation of capital—unspent proceeds from stocks, unspent depreciation allowances, non-distributed profits needed

[1] See G. W. Daniels and H. Campion : *Distribution of the National Capital,* table on p. 61. Stock Exchange securities make up some 6 per cent. of the small capitalists' holding, but 41 per cent of the big holdings.

[2] See E. F. M. Durbin : *The Politics of Democratic Socialism.*

for post-war re-equipment—we see that the growth in the National Debt no longer means what it used to during the last war. Then the great objection to an increase in the National Debt was that it represented a transfer from the general income pool to what were then people rich above the average —a transfer from poor to rich which cut right across the established system of social services and progressive taxation. This objection is much weakened already and it may well be inverted in future. It is not improbable that future increments in the National Debt—if the heavily progressive nature of income and profits taxation is maintained—may mean a transfer from rich to poor. The National Debt may become an established part of our Social Service system!

Finally, after equalisation of money incomes, the effects of progressive taxation, and the re-distribution of wealth, there is the equalisation in *consumption* brought about by rationing. Money incomes have not only become more equal, they have also become less important for standards of living. Our ration coupons represent 'shadow money' which is much more equally distributed than 'real money.' It is still true to say that with a few exceptions—free milk, cod liver oil, etc.—coupons still require money, but with a policy of price control and subsidies the requirements of 'real money' for rationed goods are low in relation to money incomes. Subsidies for mass consumption goods—now running at a rate of over £140 millions a year—really create discriminating prices for the goods which bulk more largely in the expenditure of low income groups, and thus are a powerful factor in the direction of greater equality.

The final trend might quite possibly be in the direction of divorcing the distribution of essential foods, goods and services from money incomes altogether. The 'basic ration' as part of any human being's right—except where he forfeits it as a criminal or workshy—would not only be a great advance in the direction of equality, it would also be in the line of development of the Social Service system which would find its crowning conclusion in the establishment of a minimum standard.

The institution of the publicly guaranteed free or price-fixed 'basic basket' of food, fuel, clothing and shelter would have another important economic advantage. One of the features of the period between the two wars was the extension of monopolies to production and distribution of some of the basic necessities of life—flour milling, milk, bacon, meat, coal, building materials. Mr. Austin Robinson in his recent book on 'Monopoly' calls this "the most disquieting feature of the last two decades."[1] As he rightly points out, the establishment of monopolies in things for which substitution is impossible is a problem of a different order of magnitude altogether from that of monopolies in motor cars or garden fertilisers. The state-controlled distribution of the minimum ration of basic needs might be—apart from its other advantages—recommendable as a method of averting this menace from the consumer.

Moreover a stable minimum demand—uninfluenced by variations in money incomes—for the articles included in the basic ration would go a long way towards solving the problems of agricultural 'overproduction,' particularly with a possible extension of the 'minimum ration' into the international field. It also would take the sting out of wage bargaining and the competitive process that leads to the fixing of money incomes—because the only things that would be at stake in the distribution of money incomes would be our share in the 'frills' of life and not our and our dependents' necessaries. Thus the idea of rationing which was evolved during the war with the idea of a 'maximum ration' and a limitation of consumption may well become part of the stock-in-trade of our post-war social equipment in the guise of a 'minimum ration' designed to increase and equalise consumption.

[1] P. 269.

H. W. Singer

Local Authorities and Housing Subsidies since 1919[1]

I

In the summer of 1919, almost exactly twenty years before the present war broke out, the Housing and Town Planning Act was passed. By that Act each of the main local authorities was made responsible for ensuring that there was a sufficient supply of working-class houses in its area and, if necessary or expedient, supplying those houses itself with the aid of a subsidy from the Treasury. As a result of the interruption to house building during the Great War an acute shortage of houses was anticipated in the early years of the peace. It was generally agreed at the time that in existing conditions private enterprise would not provide adequate numbers of working-class houses to let. Politically it was essential that some provision should be made for working-class needs. The Act of 1919 was that provision. Twenty years later the local authorities were still responsible for ensuring and if necessary providing any additional supplies of working-class houses required. The view was still generally held that there were not enough working-class houses to let, quite apart from the houses still required under the policy of slum clearance and abatement of overcrowding. Private investors and builders still displayed an attitude of indifference to the whole question.

In fact, with the Housing and Town Planning Act of 1919, a completely new era in the history of the method of increasing the supply of working-class houses had opened. The machinery no longer depended on the motive of private profit ; instead it depended on the willingness of local authorities. The willingness of any local authority to provide houses appears to depend on a great number of things—on the keenness of its officials, on the political pressure in the locality, on administrative or financial pressure exercised by the central government through

[1]This paper was read before the Manchester Statistical Society on 25th March, 1942.

the Ministry of Health and the Treasury and, probably most important of all, on the willingness of the local council to increase the rates, or to embark on projects which may result in losses which may have to be made good out of the rates. Now, whatever else may happen after this war, it seems most unreasonable to expect that private enterprise will start again to provide any additions to the supply of working-class houses to let which may be required. The question of what is the appropriate method of ensuring that local authorities carry out the job effectively is therefore of fundamental importance for the future. Of the various factors suggested above only the last, the financial factor, is suitable for statistical treatment ; my object in this paper is to try to throw some light on the question of the principle on which subsidies to assist local authorities to increase the supply of houses should be based. It is not possible to attempt to cover the whole range of questions involved. I shall confine myself to investigating the history of the ten years between 1921 and 1931[1], my purpose being to discover whether a subsidy which varied in some way in relation to the needs of different areas might have worked more satisfactorily than the type of subsidy provided for the greater part of this period by the housing acts of 1923 and 1924, *i.e.*, a subsidy of a fixed amount per house built, but larger in agricultural parishes than in urban.

The only way to tackle this matter is by proceeding, so to speak, backwards—by discovering first whether the local authorities responded in a more or less uniform way to the stimulus or encouragement of the subsidy : if not whether the differences can be explained in relation to the differences in the relative magnitudes of their needs, or by reference to any other variations in the local circumstances likely to influence the willingness or ability to provide houses. Even these questions could not be fully covered in a paper of this length even if the

[1] This period covers the years in which the main object of policy was to increase the total supply of houses. Unfortunately it is not practicable to separate the houses built under the 1919 Act from those built under the 1923 and 1924 Acts. It is practically certain that this does not upset the statistical results, though it would have been interesting to compare building under the different Acts.

requisite information were available. The greater part of it is taken up with setting out the facts about the differing magnitude of needs for additional houses in different parts of the country, and the extent to which the local authorities satisfied those needs.

II

The first necessity is to decide how to estimate the requirements for additional supplies of houses between 1921 and 1931. It will be appreciated that this does not involve making calculations as to the numbers of new houses needed to replace old houses destroyed or converted for use as offices, shops, etc. The number of new houses absorbed in the replacement of houses disappearing in this way will, of course, be reflected in the difference between the numbers of new houses built and the actual net increase in the numbers of houses. It will be necessary to take this into consideration at some stage, but there is no need to get entangled in the difficult problem of estimating requirements for replacement purposes *a priori*.

Methods of calculating requirements either for houses or anything else are notoriously open to dispute, but I have, I think, adopted the safe course in following the method evolved by the Registrar General in the Housing Volume of the 1931 Population Census, with one divergence. His method seems so sensible that it is something of a mystery that it was not used earlier in making estimates, for instance, of the numbers of houses required immediately after the last war. It also has the great merits that its results are quite unambiguous and explain satisfactorily the astonishing avidity with which new houses were absorbed between 1921 and 1931. For my purpose of comparing housing requirements in a number of different areas these advantages are so considerable that the use of the method appears to require no further justification. As the Housing Volume of the 1931 Census is by now rather old history it will perhaps be useful if I summarise very briefly the Registrar's reasoning. He started out by arguing that the ordinary basis of a family, outside the Population Census, is a

married couple and that as a rule each married couple wants a separate house or flat—thus sidestepping all the tiresome arguments connected with the Census definition of a private family. No doubt, as he admitted, there are exceptions to this general rule ; some married couples find it more convenient to live in hotels and lodgings, some may even really like living with their parents, and some parents may like living with their married children ! Most people, however, will have no difficulty in accepting the general proposition. Should anyone have doubts he would quickly have them resolved by discussing them with any married woman who has had to share houses, and particularly kitchens, as a result of the war-time evacuation. The Registrar argued therefore, that it is reasonable to take the increase in the number of married women, as measuring the number of additional houses required in any period, as a first approximation. He then tried making two additions, for widows and widowers and single persons wishing to live alone. As reasonable guesses he added the increase in the number of widows and widowers under 65 years to cover the first, and 10 per cent. of the increase in the number of single persons between 20 and 45 years to cover the second. The houses required, according to these three estimates, between 1921 and 1931 consisted of the actual increases in these population groups during the ten years, *plus* the excess of the similar increases between 1911 (taken as standard) and 1921 over the increase in the number of structurally separate dwellings in that period. The Registrar finally introduced a refinement, which in using his method I have omitted ; he reduced his estimates to allow for families wishing to share houses, using for this purpose the percentage of Census families sharing in 1911. In using the Registrar's method to measure the requirements for additional houses in different areas I have found that it makes no practical differences to the comparisons which of the three estimates is used. The first, of course, normally gives the smallest requirements and the third the largest, and in this paper, perhaps from inherent pessimism, I have used the third throughout.

So far it is all quite straightforward; if the Registrar's estimates are valid for the whole of England and Wales, mine will be for its component areas. But the question of actually comparing the requirements raises a certain difficulty. It seems unreasonable to compare just the absolute size of requirements, for as between very different areas they can give little idea of the magnitude of the problem in relation to the situation in each area. Suppose, to take an extreme example, requirements amounted to 5,000 in each of two areas, A and B, but the number of houses already existing in A was 100,000 while in B it was only 10,000. The difficulties in relation to building resources in the areas, in provision of the necessary ancillary services of water, sewage, roads and all the rest would inevitably be far greater in B than in A. It seems obvious that it would be far more reasonable to compare the requirements of these areas in relation to the houses already existing in them. This is the usual and accepted way of comparing quantitatively the scale of the requirements in different areas. I have adopted it throughout, calculating requirements between 1921 and 1931 per 100 houses already existing in 1921 and calling the result the rate of requirements. The qualitative differences entering into the difficulties of providing the requirements, such as greater difficulties of obtaining sites in densely built up districts, are more properly as well as more easily allowed for separately.

There is one more tedious point of explanation before we can get down to the data, that is the question of the areas to be compared. Theoretically it would no doubt be desirable to compare the scale of requirements within the areas of individual Local Authorities. In practice this is quite impossible, partly because of the development of overflows of population from the districts of the main Local Authorities into dormitory towns, partly because—and this seems conclusive—it is essential to choose areas of which the boundaries have not changed to an important extent between 1911 and 1931. In fact for the the latter reason the Administrative Counties including their associated County Boroughs provide the only practicable statistical basis. Even the basis of the counties is not infallible

and it has been necessary or desirable to combine some of them. For example Warwickshire and Worcestershire have had to be combined because the City of Birmingham succeeded in acquiring a considerable piece of Worcestershire during the period. It also seemed rather obviously desirable to put Lancashire and Cheshire together, Northumberland and Durham, etc.

For the time being, I think that completes the necessary explanations. The results of the computations of rates of requirements are set out in the first column of Table I in which the counties have been arranged in order of the magnitude of their rates of requirements. The average rate of requirement between 1921 and 1931 was 19.7[1], quite sufficiently high to cause difficulties one might suppose. The differences between the counties are, however, of greater importance than the average for our purpose, and it will be seen that they are very marked. To take extremes, the rural county of Herefordshire comes at the bottom of the list with a rate of requirement of only 8, closely followed by three other rural counties, Norfolk, Suffolk and Cornwall with rates of 10 each. Nine counties altogether had rates of requirements which did not exceed 13. At the other extreme the needs of Surrey and Essex amounted to the astonishing rates of 50 and 43, respectively, while nine counties together had requirement rates of 25 or more.

It is of course only to be expected that the counties with the highest requirement rates should be those in the South-East and Midlands. It will be noticed that all the counties with rates above the average were in these regions ; London and Middlesex came just below. The other counties whose rates came below the average were those which had not shared the comparative prosperity of the South-East and Midlands : that is the predominantly agricultural counties and those industrial counties whose fortunes were closely bound up with the export industries. The way in which these counties were grouped together in odd mixtures of agricultural and industrial areas is of some interest. For example, the West Riding of Yorkshire, Glamorganshire and Monmouthshire each had a

[1] All the averages, etc., are given in Table III.

requirement rate of 18, but so had Devonshire, Wiltshire, Gloucestershire, Oxfordshire and Bedfordshire. A little lower down the scale came an almost equally odd group, bracketted together, Lincolnshire and Rutlandshire, Cambridge and Ely together with Lancashire and Cheshire. Nor does there seem any obvious reason to have expected Northamptonshire, Cumberland and the East and North Ridings of Yorkshire all to have had rates of 11.

It is of course evident that if housing requirements are measured in the way initiated by the Registrar-General they become dependent on the age composition of the population. Since the age composition of the population in any district depends partly on its past history and partly on contemporary shifts of population from one part of the country to another, in search of work and prosperity, considerable variations in the rate of housing requirements are inevitable. This is entirely consistent with the past history of booms and depression in the building trade ; local differences in timing of booms and depressions in the building trade frequently occurred before the Great War.

The question of major importance as far as dependence of additions to the supply of working-class houses on the activities of Local Authorities is concerned, is Have the Local Authorities in fact displayed responsiveness to local needs during the ten years up to 1931 ? It was during this period that their main function as house builders was to provide additions to the supply. If they lacked the necessary sensitiveness to requirements, the second question which needs answering is, Was something wrong with the financial mechanism? In the rest of this section I shall try to sort out the facts which may answer the first question.

The second and third columns of Table I show the deficiencies or surpluses of housing requirements outstanding in 1931 per 100 houses in 1921, and the net additions to the supply of houses made between 1921 and 1931 per 100 houses in 1921, respectively. I shall call these "the rates of surplus or deficiency" and "the rates of increase in supply." In Table II the first column shows the surpluses or deficiencies

as percentages of requirements. These columns provide us with a great deal of useful information. The average rate of increase in supply between 1921 and 1931 was 16.9, and the average rate of deficiency 2.8, or 14.2 per cent. of requirements. This result was perhaps a creditable achievement considering the difficulties connected with supplies of labour and materials in the earlier years of the decade, considering that a considerable number of houses were built which simply replaced those pulled down or converted into shops or offices, etc. But it is dangerous to be complacent on the basis of averages, as a glance at the figures in Table II will show. The progress made differed widely in the various districts. In four there was actually an apparent surplus by 1931, amounting in the North Riding of Yorkshire to 29 per cent. of requirements and in Northamptonshire to 33 per cent. ; in Lancashire and Cheshire and in Suffolk, however, the surpluses were small, a mere 4 per cent. At the other extreme, in five districts, Derbyshire, Wiltshire, Lincolnshire and Rutland, Westmorland and Herefordshire, there were deficits of 30 per cent. or more of requirements ; in four others there were deficits of between 20 and 30 per cent. Most regrettably from the point of view of a simple explanation, the geographical distribution of the results appears entirely haphazard. It is natural to suggest that the explanation would be found in differences between the proportions of all new houses which were cancelled out by old houses destroyed or converted to other uses. The data relating to this possibility are rather inadequate, but one thing is quite clear from it—an explanation cannot be found along these lines.

The figures in Table I throw rather more light on the matter ; at least there appears to be some sort of order about them. It will be noticed in the first place that the rate of increase in supply tended to be relatively high in those counties in which the rate of requirements was relatively high. The correlation coefficient between the rate of requirements and the rate of increase in supply is in fact positive and very large, 0.97. It is clear that the rate of increase, though not usually adequate to satisfy requirements, did at least vary in very close relationship to the rate of requirements. It is not,

of course, inconsistent with this that the rates of deficiency or surplus should display quite considerable variations. In fact there were marked differences in the supply position in the different counties even in 1931. Derbyshire, Essex and Surrey remained relatively black spots with rates of deficiency of 8 or more, and in some of the agricultural counties the position was comparatively unsatisfactory compared with the counties with surpluses. There is no question, however, that so far as total supply of houses available is an index, there was less variation in 1931 than in 1921 and less urgency.

It is not possible to leave the matter at this stage: we have only got a partial answer to our main question. We can say now with reasonable certainty that in fact the increase in supply did display a high degree of responsiveness to local requirements. We should of course be able to be rather more definite about this if it had been feasible to use areas smaller than counties as the basis of comparison, but I think there is really little doubt about the general conclusion. So far, however, we have not considered the part played by Local Authorities compared to private enterprise, so that we know nothing whatever about the increases in supply of specifically working-class houses to let.

The last two columns of Table I provide information on this aspect of the matter. They show the numbers of additional houses per 100 houses in 1921 which can be credited to the Local Authorities and Private Enterprise, respectively. I shall call these simply the Local Authority and Private Enterprise rates of supply, respectively.[1] The supporters of Private Enterprise will be cheered by these figures.

[1] There is a slight complication in connection with these figures. Normally the houses provided by Local Authorities in each county or group of counties are those built by the actual Authorities included in the counties. The L.C.C. however built to some extent outside its own boundaries and those of Middlesex, *viz.* in Essex, Surrey and Kent, particularly in Essex. These houses are included only in the totals for the L.C.C. and Middlesex, and therefore in strict accuracy all five counties should be grouped together for calculations. This procedure would however make no difference to the substantial results and as it proved more convenient to treat these counties separately in the earlier part of the paper, I have continued to do so in the text. The alternative set of calculations is shown however in Table III.

The average local authority rate of supply was a mere 5.6 but the average for private enterprise was 11.3, about twice as high. Except in Cumberland and Northamptonshire the private enterprise rate was higher throughout than that of the local authority. It will be noticed also that the local authority rate varied much less than the private enterprise rate. For instance the lowest local authority rate was 2.0 and the highest rather more than five times as high ; in the case of private enterprise the highest rate was about 11 times as high as the lowest. More technically the contrast is demonstrated by the difference between the coefficients of variation, shown in Table III.

It seems that there was a certain stickiness about the response of local authorities to needs ; in only a few cases did they pass the rate of 7. Perhaps there was a certain lack of enterprise, on their part, or perhaps they were really faced with insuperable difficulties. Further inspection of the figures shows too that, though there was an obvious tendency for the private enterprise rate of supply to be relatively high in the counties with relatively high requirement rates, this tendency was not only not very obvious in the case of the local authorities but was also irregular. Now it is just this matter of the extent to which local authorities responded to varying rates of requirements which seems so important in judging the adequacy of the local authority mechanism for providing additions to the supply of houses. With some abuse of the technical meaning of "elasticity" in economics I propose to call the degree or extent of this responsiveness "the elasticity of response to requirements." I apologise to the purists but the word elastic was not invented by economists, and it is a very convenient word. This "elasticity of response" then needs measuring and it is clear that it can very suitably be measured by the correlation coefficients between rates of requirements and the rates of supply of private enterprise and local authorities, respectively. Both these were positive and significant, but in the former case it was very high +0.95, and in the latter relatively small +0.39. The correlation coefficient of rates of requirements with "the rates of increase

in supply" has already been given as +0.97, practically the same as the correlation with the private enterprise rate. It is clear then that private enterprise displayed a much higher degree of responsiveness to local rates of requirements than local authorities.[1]

The full significance of these results will perhaps be made clearer by turning for a short time to the proportions of requirements provided by the local authorities and private enterprise in the various counties. These are shown in the second and third columns of Table II. On the average the local authorities provided rather under a third of requirements and private enterprise rather more than one-half. Broadly speaking that meant that, except for those working-class families who were able and willing to buy new houses, the provision of additional houses for working-class families depended to a very considerable extent on the extent to which middle-class families vacated old houses by either dying or moving into new ones. As of course some at least of the new houses built by private enterprise were needed by the increased numbers of middle-class families, not all these moves by any means would result in houses being released for working-class tenants. It is clear however from the figures relating to deficiencies and surpluses outstanding in 1931 that such a shift must have taken place on a considerable scale. This cannot, I think, be regarded as satisfactory process either for the years 1921-31 or for repetition in the future. Not only may the houses which become available be thoroughly unsuitable, in location or size, but the actual supply is necessarily mainly dependent on the *willingness* of the families in the higher income groups to move rather than on the requirements for working-class houses. It cannot seriously be contended, I think, that there is a close and inevitable relationship between these factors.

This, however, is something of a digression, the main purpose at the moment is to see how far there were important differences between the proportionate contributions of private

[1] It will perhaps be of some interest to the statistically-minded that the correlation coefficient of local authority rates and private enterprise rates was insignificant (0.23 ± 0.16), and the partial correlation rates of requirements constant, positive and significant ($+0.51 \pm 0.12$).

enterprise and local authorities in different parts of the country. It is quite obvious from Table II that there were ; in view of the results obtained already from the data in Table I it was inevitable that there should be. It is in the South-Eastern counties that the contribution of the local authorities was relatively least important. For London, Middlesex, Surrey, Kent and Essex grouped together the local authorities provided only 21 per cent. of requirements, compared with over 40 per cent. in the West Riding of Yorkshire and in Lancashire and Cheshire. In general it appears that the local authorities made larger proportionate contributions in the Midlands and in the other industrial counties than in the South-East, though of course this does not mean that the actual rate of building by local authorities was necessarily higher. Even in these areas, however (where it will be remembered the rate of requirements was generally lower than in the South-East) the local authority contribution only reached 50 per cent. or more in three counties. Of these Cumberland and Northamptonshire both had low rates of requirements, while the third, Staffordshire, had a considerable one. The situation is perhaps most effectively demonstrated by the correlation coefficients between the rates of requirements and the proportions of requirements contributed by local authorities. This was negative and significant, —0.54. There is no manner of doubt that the proportion of houses provided by the local authorities was not merely not higher where the rate of requirements was relatively high, but actually tended to be lower. The parallel correlation coefficient for private enterprise was on the other hand positive and significant though not large, *i.e.* +0.30.

It will be convenient before trying to look for explanations to summarise the conclusions so far reached. (1) The rate of housing requirements differed considerably between the various counties and on the whole was greater in the South-East and Midlands than elsewhere. *Prima facie* this suggests that, if it was considered that working-class needs should have been provided for on the same scale everywhere, assistance to local authorities should have been related in some way progressively to those needs. (2) In practically all counties private enterprise

made larger quantitative contributions to requirements than the local authorities. (3) The local authority rates of supply showed considerable stickiness particularly in comparison with those of private enterprise. (4) The elasticity of response of private enterprise to requirements was positive and very high, that of local authorities though also positive was very much lower. (5) There was a definite negative correlation between the proportionate contributions made to requirements by local authorities and the rates of requirements, but a positive, though not high, correlation in the case of private enterprise. The proportionate contributions made by local authorities to requirements were particularly low in the South-East. (6) In general it appears that under the conditions ruling between 1921 and 1931 the local authority machinery did not provide adequately for the very varying requirements for additional houses in the different parts of the country; it was most successful in areas where the rates of requirements were relatively small.

III

It is always comparatively easy to describe facts, particularly if they can be described with the help of a few simple statistical devices. This so far is really all that I have succeeded in doing and it is a very different problem to explain the facts. For instance, it has been shown that the proportionate contribution to requirements made by local authorities was inversely correlated with the rate of requirements, that is that where the rate of the housing requirements was high the proportion of additional houses provided by the local authorities tended to be relatively small. This does not in any way prove that the relative size of requirements had a causal connection with the scale of building by the local authorities. It is quite possible that there were other circumstances peculiar to the districts with high rates of requirements that prevented or discouraged building by local authorities. To attempt to cover the whole field of questions raised by considerations of this sort is impossible. I shall confine myself to two illustrations of the sort of circumstances which may have upset the uniformity of behaviour by local authorities.

My first illustration, the question of the special circumstances of the London region, I need only deal with very briefly as it will be familiar to nearly everyone. It will be remembered that London and the group of counties round it taken together had a relatively high rate of requirement, *i.e.* 27, and ended up in 1931 with a relatively high rate of deficit of 4.9, or 18 per cent. of requirements. The contribution of the local authorities had been about one-fifth of requirements and that of private enterprise rather over three-fifths. Judged by any of the usual criteria this was a pretty poor effort on the part of the local authorities, particularly perhaps of the L.C.C. They had not succeeded in providing houses at as high a rate as, for instance, the local authorities of Warwickshire and Worcestershire or the West Riding of Yorkshire where rates of 10.0 and 7.9 were reached. It seems pretty well self-evident too that, other things being equal, the cost involved should not have presented more insuperable problems to the London area than to these other parts of the country. The generally accepted explanation of the London situation appears to be perfectly sound though it may not be complete. The explanation runs thus : Greater London, and particularly the County of London itself, is an outstandingly large built-up area ; to provide additional houses or flats either people have got to be prepared to move continually further out from the centre, or they must live in flats built on expensive sites. Both these alternatives mean that in fact housing accommodation is more expensive than in other areas : the latter because sites in the centre are extremely expensive ; the former because though the sites for houses outside London are cheap compared with those in the centre they are not necessarily any cheaper than those available in or around other large towns, and in addition, the distances being greater, the cost of travelling to and from work in time and money is higher. It follows that, unless the level of working-class incomes is sufficiently above that in other towns to compensate for these higher costs, either the local authorities will require a larger subsidy per house from the Treasury, or, the number of houses they build will most probably be particularly inadequate. Traditionally the level

of wages in the London area used to be, and still is, rather higher than elsewhere, but this does not necessarily mean the difference is sufficiently great to balance the higher costs. It would lead me too far afield to attempt to answer this question or the related one, of whether the standard of house being built by the local authorities has any connection with the matter. Enough has been said to indicate that there may well have been special circumstances in the London area which partly or entirely explain the special inadequacy of the building by local authorities.

My second illustration is connected with the very varying degree of progress made in providing houses in the more important Northern and Midland industrial counties and with the possibility that the ability, or willingness, of the various local authorities to build houses may have been affected by the varying possibilities of obtaining sufficient rents. The only information about rents available for this purpose is very unsatisfactory but it is of some interest. The Board of Trade Pre-war Inquiry into working-class rents provides information on rents (including rates) of working-class houses in a number of towns, in 1912.[1] The Ministry of Health has published a statement of the rents (excluding rates) charged in 1936[2] for the local authority houses built by the county boroughs under the various housing acts, excluding houses built for slum clearance purposes. Comparison of the average rents calculated from this information for the 36 county boroughs[3] in the industrial North and Midlands, for which information is available at both dates, furnishes some indication of the extent to which rents of local authority houses exceed the pre-war rents in various places. The average rent for working-class houses in the 36 boroughs was 5/2d. in 1912 (coefficient of variation 10.4 per cent), and 6/8d. for the local authority houses in 1936 (coefficient of variation 9.6). As between the boroughs the rents of the local authority houses excluding rates were thus slightly less variable than the rents of working-class houses including rates

[1] "Report of Inquiry into working-class rents, etc., in industrial towns of the U.K. in 1912." Cd. 6955 (1913).

[2] "Rents of Houses and Flats owned by Local Authorities (England and Wales.)" Cd. 5527, 1937.

[3] The County Boroughs included are listed in the note to Table IV.

in 1912. It appears also that the gap between the average local authority rent in 1936 and the average working-class rent in 1912 tended to be greater in the boroughs which had relatively low rents in 1912. The coefficient of correlation between the average 1912 rent and the excess over it of the local authority rent was —.28.[1] This gap varied from 6d. to 2/1d. in the various boroughs.

It is probable therefore that the rent policies adopted by the various boroughs differed either from choice or necessity in relation to pre-war levels of rents in their areas. Since as a rule the market for additional houses depends on the rents at which they are let, it seems quite possible that the extent to which local authorities in these various boroughs found in practice an effective demand for additional houses in conformity with theoretical requirements was influenced by the varying rent policies adopted. Unfortunately the information by which this can be tested out is not available but the data set out in Table IV are perhaps of some interest.

The last five columns of the Table show the numbers of county boroughs in which various percentages of the houses built by the local authority were being let in 1936 at rents below the maximum working-class rents in those boroughs in 1912. Although the rent figures available for 1936 are net rents excluding rates, and those for 1912 are gross, including rates, this does not prevent the comparison being instructive.

In the two districts, Derbyshire, Northumberland and Durham, with the really large deficiencies in 1931 not one of the county boroughs was letting more than 55 per cent. of its houses at net rents below the 1912 maximum gross rent for working-class houses in that borough. In Derby in fact only 12 per cent. of the local authority's houses were let below the 1912 maximum. In Staffordshire, the county with the next largest deficiency, in Wolverhampton alone of the county boroughs did the percentage exceed 50 ; in Stoke-on-Trent it was 49 but in Walsall it was only 8. Progressing down the Table the deficiencies decrease and become surpluses and

[1] It seems most improbable that addition of rates to the 1936 rents would dispose of this.

it can be seen that in each county except the East Riding of Yorkshire the majority of county boroughs let more than 60 per cent. of their local authority houses at rents below the 1912 maxima. It is obviously very risky to compare rent data relating to county boroughs with deficits or surpluses relating to the whole county, although of course it is extremely likely that the county boroughs directly or indirectly contributed on a considerable scale to the county surplus or deficit. It is probable that rents of local authorities' houses changed between 1931 and 1936 ; as, however, the pressure on local authorities to develop differential renting increased between those years it is probable that the 1936 figures are more favourable than any for 1931 would have been ; it seems unlikely that such changes would have been so fundamental as to alter the comparison between the boroughs. But though we evidently cannot draw conclusions from the Table it at least suggests one or two interesting possibilities. If we could generalise from the boroughs to the counties, the Table would suggest that the deficits may have arisen because neither local authorities nor private enterprise in some counties were prepared to let at rents sufficiently low, in comparison with the pre-war rents, to find a market co-extensive with the people who would normally like separate houses. It is possible that this might have occurred either because costs of building had risen disproportionately more in some districts, or that money incomes had risen less, compared with the situation before the last war. It is possible that private enterprise had been building for a market quite unaffected by the possible existence of these factors ; if so the deficits would be solely the result of their influence on the local authorities. There is of course always the possibility that the local authorities might have miscalculated their markets and fixed their rents unnecessarily high.

Thus if it were true that the information about rent changes in the county boroughs applied to the whole counties it might be possible to reach some definite conclusion as to relations between changes in rent and the progress made by local authorities in providing additional houses. As we do not

know whether it would be legitimate to do this, all we can conclude is that the possibility cannot be ignored that building by local authorities has been held up more in some areas than in others by local difficulties in obtaining sufficiently high rents to cover costs even with the subsidies available.

IV

This paper has already become quite unduly long and deplorably cluttered with explanations of the possible or probable type. These possible and probable explanations all have the merit, however, of indicating the same general conclusions as the statistics set out in the second section. These general conclusions may be summarised as follows : First the relative requirements for additional houses between 1921 and 1931 differed widely between different parts of the country. Second, the extent to which, and particularly the way in which, they were satisfied also differed ; "the elasticity of response to requirements" of the Local Authorities being low, that of Private Enterprise being very high. Third, it follows that, whatever the reasons, the subsidies effective between 1921 and 1931 did not produce similar rates of expansion of supply in relation to needs in different districts ; the results in general tending to be least satisfactory so far as specifically working-class houses to let were concerned in areas with relatively large requirements. On all ordinary criteria then the system of subsidies which, with the exception of the brief period of building under the 1919 Act, consisted of a fixed amount per house in all urban areas,[1] (and a rather larger fixed amount per house in agricultural areas), did not work well.

The data discussed in Section III, although not leading to definite conclusions, suggested that factors such as the differences in availability of sites, and differences in the level of rents necessary to cover the costs of Local Authority houses compared to pre-Great War levels of rents, may have contributed to differences in degrees of progress made by local authorities. To be strictly accurate it is not possible to determine from these

[1] The rates of subsidy under the 1923 and 1924 Acts differed but as the type of house on which they were available also differed this is not of importance. The bulk of the building was done under the 1924 Act.

results whether variations of this type were the main factors influencing the results or whether the relative magnitudes of requirements were causal factors instead or as well.

However, this may be, it is evident that as a result of one type of factor or another the uniform system of subsidies cannot be regarded as having been satisfactory. This is not after all surprising. The corollary is, of course, that subsidies varying progressively in some way or other with the needs or circumstances of different areas might have been expected to work better. This is not at all a revolutionary idea ; it has been accepted already in a very weak form in the 1935 Housing Act specifically for building in abatement of statutory overcrowding. It was introduced into certain other fields of local authority endeavour with the famous formula for the distribution of block grants by the Local Government Act of 1929. In its reverse aspect, in taxation, progressive principles and practice are among the boasts of this country. To sum up : it can be said that the experience of the 10 years from 1921-31 indicates, that if the local authorities are to continue to be the main agents for making additions to the supply of working-class houses, the most careful consideration should be given to the possibility of introducing subsidies varying progressively with the circumstances of individual areas, either in relation to the scale of needs or in relation to costs and income levels. It is possible that special consideration should also be given to the levels of rates and the rateable values of the different areas, but it has not been possible to consider this aspect in this paper.

Marian E. A. Bowley

TABLE I

Rates of Housing Requirements and Rates of Supply, 1921-31, and Rates of Surplus or Deficit, 1931. (Counties of England†).

Counties	Rate of requirements for additional Houses, 1921-31‡ (1)	Rate of Surplus (+) or deficit (—) of houses 1931‡ (2)	Rate of Supply of Additional Houses, 1921-31		
			Total* (3)	Local Authorities* (4)	Private Enterprise* (5)
Surrey**	50	—8·3	41·7	6·2	35·5
Essex**	43	—8·2	34·8	6·0	28·8
Hertfordshire	36	—2·5	33·5	10·8	22·7
Buckinghamshire	32	—5·5	26·5	5·4	21·1
Derbyshire	27	—9·0	18·0	7·2	10·8
Kent**	26	—3·6	22·4	5·5	16·9
Sussex	26	—3·9	22·1	4·2	17·9
Hampshire and Isle of Wight	25	—3·0	22·0	4·5	17·5
Leicestershire	25	—3·0	22·0	6·5	15·5
Warwickshire and Worcestershire	24	—2·9	22·1	10·6	11·5
Nottinghamshire	24	—2·1	21·9	7·7	14·2
Staffordshire	20	—3·2	16·8	10·0	6·8
Berkshire	20	—3·2	16·8	5·2	11·6
London and Middlesex**	19	—3·8	15·2	5·1	10·1
Dorsetshire	19	—3·6	15·4	2·7	12·7
Devonshire	18	—5·0	13·0	3·6	9·4
Wiltshire	18	—5·4	12·6	4·9	7·7
Oxfordshire	18	—2·7	15·3	6·1	9·2
Yorkshire W. Riding and York City	18	—0·9	17·1	7·9	9·2
Glamorganshire	18	—2·7	15·3	6·1	9·2
Monmouthshire	18	—2·6	15·4	5·7	9·7
Bedfordshire	18	—0·5	17·5	4·9	12·6
Gloucestershire	16	—3·5	12·5	5·6	6·9
Northumberland and Durham	16	—3·2	12·8	6·2	6·6
Westmorland	16	—5·6	10·4	3·0	7·4
Lincolnshire and Rutlandshire	14	—0·4	13·6	4·2	9·4
Cambridgeshire and Ely	14	—0·4	13·6	6·2	7·4
Lancashire and Cheshire	14	+0·5	14·5	6·0	8·5
Somersetshire	13	—1·8	11·2	4·8	6·4
Northamptonshire ...	11	+3·6	14·6	7·7	6·9
Yorkshire E. Riding ...	11	—0·5	10·5	4·3	6·2
Yorkshire N. Riding ...	11	+3·1	14·1	4·7	9·4
Cumberland	11	—1·8	9·2	6·1	3·1
Suffolk	10	+0·4	10·4	3·6	6·8
Norfolk	10	—1·1	8·9	4·3	4·6
Cornwall...	10	—1·7	8·3	2·0	6·3
Herefordshire	8	—2·8	5·2	2·0	3·2
London, Middlesex** Essex Kent and Surrey	27	—4·9	22·1	5·6	16·5

† The only County of Wales included is Glamorganshire.
All the English Counties have been included separately or together except Huntingdonshire and Shropshire, for which by some oversight I failed to obtain complete sets of figures.

‡ Calculated as explained in text. The rate is per 100 occupied houses in 1921 for each area. All the figures are derived from the Population Censuses of England and Wales, 1911, 1921 and 1931.

* For calculation of rate see note above. The figures on which these rates are based were provided some years ago by the courtesy of the Ministry of Health. The figures exclude all houses built for slum clearance purposes.

** Except in the case of the L.C.C., Kent, Surrey, Middlesex and Essex, all the figures of Local Authority building relate to building by the Local Authorities within their respective counties. The L.C.C. built outside its own boundaries in Middlesex, Essex, Kent and Surrey—this building is included in the L.C.C. figures and excluded from those of the respective counties. The figures are shown for all these four counties together at the bottom of the Table. See also note on page 9 of the text.

TABLE II

Deficiencies (or Surpluses) in 1931 and Additional Houses supplied by Local Authorities and Private Enterprise as percentages of Requirements, 1921-31. (Counties of England)†

Counties	Deficiency or Surplus, 1931, as % of requirements 1921-31	Additional Houses supplied by 1921-31	
		Local Authorities as % of requirements 1921-31	Private Enterprise as % of requirements 1921-31
	(1)	(2)	(3)
Surrey**	—17	12	71
Essex**	—19	14	67
Hertfordshire	— 7	30	63
Buckinghamshire	—17	17	66
Derbyshire	—34	26	40
Kent**	—14	21	65
Sussex	—15	16	69
Hampshire and Isle of Wight	—12	18	70
Leicestershire	—12	26	62
Warwickshire and Worcestershire	— 8	44	48
Nottinghamshire	— 9	32	59
Staffordshire	—16	50	34
Berkshire	—16	26	58
London and Middlesex**	—20	27	53
Dorsetshire	—19	14	67
Devonshire	—28	20	52
Wiltshire	—30	27	43
Oxfordshire	—15	34	51
Yorkshire, W. Riding and York City	— 5	44	51
Glamorganshire	—15	34	51
Monmouthshire	—14	32	54
Bedfordshire	— 3	27	70
Gloucestershire	—22	35	43
Northumberland and Durham	—20	39	41
Westmorland	—35	19	46
Lincolnshire and Rutlandshire	— 3	30	67
Cambridgeshire and Ely	— 3	44	53
Lancashire and Cheshire	+ 4	43	61
Somersetshire	—14	37	49
Northamptonshire	+33	70	63
Yorkshire E. Riding	— 4	39	57
Yorkshire N. Riding	+29	43	86
Cumberland	—16	55	29
Suffolk	+ 4	36	68
Norfolk	—11	43	46
Cornwall	—17	20	63
Herefordshire	—36	24	40
London, Middlesex,** Essex, Kent and Surrey	—18	21	61

† For sources of original figures etc., see notes to Table I.
** See note ** in Table I.

TABLE III

Averages, Deviations and Correlation Coefficients relating to Tables I and II.

Note : The following notation is used—

w = Rate of Requirements for additional houses, 1921-31, and w* the average rate.

b = Rate of Total Supply of additional houses, 1921-31, and b* the average rate.

l = Local Authority rate of supply of additional houses, 1921-31, and l* the average rate.

p = Private Enterprise rate of supply of additional houses, 1921-31, and p* the average rate.

l_1 = Addition to supply of houses made by Local Authorities as % of requirements, 1921-31, and l_1* the average rate.

p_1 = Addition to supply of houses made by Private Enterprise as % of requirements, 1921-31, and p_1* the average rate.

Averages †	Correlation Coefficients†	Partial Correlation
$w^* = 19{\cdot}7$; $\sigma = \pm 9{\cdot}0$	$r_{wl} = +0{\cdot}39 \pm 0{\cdot}14$	$r_{pl_1w} = +0{\cdot}51 \pm 0{\cdot}12$
$b^* = 16{\cdot}9$; $\sigma = \pm 5{\cdot}0$	$r_{wp} = +0{\cdot}95 \pm 0{\cdot}025$	
$l^* = 5{\cdot}6$; $\sigma = \pm 2{\cdot}0$	$r_{wb} = +0{\cdot}97$	
$p^* = 11{\cdot}3$; $\sigma = \pm 6{\cdot}8$	$r_{lp} = +0{\cdot}23 \pm 0{\cdot}16$	
$l_1^* = 31{\cdot}6$ $\sigma = \pm 12{\cdot}5$	$r_{wl_1} = -0{\cdot}54 \pm 0{\cdot}12$	$r_{wl_1 \cdot p_1} = -0{\cdot}48 \pm 0{\cdot}13$
$p_1^* = 56{\cdot}1$ $\sigma = \pm 12{\cdot}0$	$r_{wp_1} = +0{\cdot}30 \pm 0{\cdot}15$	
	$r_{p_1l_1} = -0{\cdot}35 \pm 0{\cdot}14$	

Coefficient of variation of l = 35·7%
Coefficient of variation of p = 60·2%

† When London, Middlesex, Kent and Surrey are taken as one group the following main results are obtained. Using the same notation : $w^*=18{\cdot}1$; $b^*=16{\cdot}7$; $l^*=5{\cdot}6$; $p^*=11{\cdot}1$; $l_1^*=32{\cdot}8$; $p_1^*=55{\cdot}3$; $r_{wl}=+0{\cdot}59$; $r_{wp}=+0{\cdot}98$.

TABLE IV

Deficits and Surpluses in 1931 as percentages of Requirements, 1921-31, in Midland and Northern Counties and percentage of Local Authority Houses in County Boroughs* in those Counties let at net rents in 1936 below maximum gross rents of working-class houses in those boroughs in 1912†

County	Deficit (—) or Surplus (+) in 1931 as % of requirements 1921-31	Additional Houses supplied by L.A.'s 1921-31 as % of requirements 1921-31	No. of County Boroughs in which following % of L.A. houses in 1936 let below maximum 1912 gross rents ‡				
			90% & over	70% & under 90%	60% & under 70%	50% & under 60%	Under 50%
Derbyshire	—34	26	—	—	—	—	1
Northumberland and Durham	—20	39	—	—	—	3	2
Staffordshire	—16	50	—	1	—	—	2
Nottinghamshire ...	— 9	32	—	1	—	—	—
Warwickshire and Worcestershire ...	— 8	44	—	3	—	—	—
Yorkshire, W. Riding and York City ...	— 5	44	4	1	1	—	—
Yorkshire E. Riding	— 4	39	—	—	—	—	1
Lancashire and Cheshire	+ 4	43	1	4	3	1	5
Yorkshire N. Riding	+29	43	—	1	—	—	—
Northamptonshire...	+33	70	—	1	—	—	—

* The following County Boroughs are included : Darlington, Gateshead, Newcastle-on-Tyne, South Shields, Sunderland ; Hull, Middlesborough, Bradford, Halifax, Huddersfield, Leeds, Sheffield, York ; Derby ; Northampton ; Nottingham ; Birmingham, Coventry, Worcester ; Stoke-on-Trent, Walsall, Wolverhampton ; Barrow-in-Furness, Birkenhead, Blackburn, Bolton, Burnley, Liverpool and Bootle, Manchester, Oldham, Preston, Rochdale, St. Helens, Stockport, Warrington, Wigan. These were the only County Boroughs for which figures were available in 1936 and in 1912.

† For sources and explanation of figures, see text, Section III.

‡ The meaning of the Table may be made clearer by the following example. In Wolverhampton, the maximum working-class rent (including rates) in 1912 was 6/6 ; and in 1936 73% of the houses built by the County Borough of Wolverhampton were being let at rents (excluding rates) below 6/6d.

Price Leadership in the Rayon Industry

Prices of yarns in the British rayon industry have been determined, in the main, by one firm since the establishment of the industry shortly before the last war. The following traces the price and production policies adopted by this firm under changing conditions of demand and supply, and the effect of these policies on other interests in the industry. The period under consideration falls into four chronological divisions: the pre-war phase when the industry and the monopoly of the industry were established; the post-war phase up to 1925 when the industry expanded rapidly, still mainly under the control of one firm; the 1925-1930 phase of development, during which time many new competitors entered the industry; and the 1930-1939 phase, when with a smaller share of the rayon market, the leading firm proceeded to develop other products of a cellulose nature.

I.

The pre-1914 phase of the British rayon industry was mainly one of experiment in the laboratory and of attempts to place the more successful laboratory experiments on a commercial basis. In the laboratory the aim was to try to produce a continuous filament, preferably resembling silk, and capable of being woven and of withstanding the wear and tear expected of a finished garment. With this end in view scientists and psuedo-scientists had made patient research, or dabbled with various substances, almost throughout the nineteenth century. Most of these experiments were failures, but out of isolated discoveries and the linking of these discoveries, various types of yarn had been made by hand before the end of the century; and in France, Count Chardonnet, a pioneer in the rayon industry, had even set up a few small factories based on his own nitro-cellulose process. Later in England we find experimental plants, but neither in England nor France did the early factory experiments show any signs

of expansion. Chardonnet's yarn was inflammable and had a "bad name" even after he succeeded in de-nitrating the filaments. In England the hold of the old textiles on the market was very tight, and while traditional products were still in demand textile manufacturers were not inclined to experiment with a new yarn. When the firm of Courtaulds, holding the patent right of the viscose process, began to place their new synthetic product on the market, they encountered considerable difficulty in selling at all. So did other experimental concerns ; they had set up a small plant, produced a brittle metallic yarn and succeeded only in selling a little for use as fringes on couches and lampshades. But the viscose process was more promising ; it cost less to work and a lower price could be fixed than for nitro-cellulose yarn or cuprommonium yarn. The cotton weaver, however, was not attracted by price reductions, for he was fairly fully occupied in turning out cotton products. Rayon could not be sold at any price and when offered the yarn for nothing some manufacturers, with tales of Chardonnet's explosive dresses still lingering in their minds, accepted the hanks reluctantly. The selling quality of fabrics made from the glittering yarn mixed with cotton or wool soon revealed itself ; the weavers ordered more and were willing to pay a price. In the few years before the outbreak of war Courtaulds, now converted into a public company, was in a position to fix prices yielding the maximum returns in relation to output, for there were no competitors on the market, nor was there much danger of bringing in new firms while they held the viscose rights. Its dominant position was further reinforced by the fact that it had virtually a technical monopoly ; it had largely overcome the intricate and difficult procedure of transferring production from the laboratory to the factory, of designing machinery for performing operations hitherto done by hand, of working on a continuous basis—with all the consequences of breakdowns through the tearing or the smearing of the yarn—and of training people to work the machinery and to acquire the skill necessary for drawing the syrup-like substance from the spinning nozzles into the chemical baths and thence around glass wheels into the spinning box. Any

new firm exploiting a successful laboratory process of rayon manufacture would be faced with a similar series of technical obstacles. Finally, the leading firm had financial strength: much of the capital for expansion was already available and only a fifth of the £2½ million capital was taken from the market.

II.

Before we examine the post-war price and production policy of the leading rayon firm we must take into account the changed market conditions and potentialities. The general switch over towards more luxurious tastes after the war, the democratization of wearing habits, the greater tempo of fashion changes stimulating and canalising public taste in clothes, generated new demands for rayon and silk products, and, in particular, the vogue of the short skirt, necessitating better-looking stockings, increased the consumption of the new yarn by way of the hosiery trade. Probably the demand for rayon would have been more fully satisfied by the use of pure silk products, but to the majority of consumers and potential consumers silk products were at a prohibitive price, nor was the supply of real silk sufficiently elastic to meet all the new demands. So rayon products were consumed at the lower price; they had the appearance of silk manufactures and hence the "glamour and distinction" which has always been associated with the oldest of textiles. Moreover the quality of the synthetic yarn had been much improved and was being further improved by new laboratory results; the poor washing and draping qualities, the brittleness and metallic glitter which characterised the pre-war yarn, were weaknesses which were fast disappearing. Thus during the early twenties total demand increased rapidly, partly through a shift of demand from other textiles, but far more so from the sprouting through the richer soil of taste of new demands, fertilized by new fashions and stimulated by advertisement and attractive prices.

The attractive prices were not determined by competition but by the board of directors of the leading viscose company, which emerged from the war less protected by patents, some of which had lapsed, but much strengthened on the financial side

by the profits of their overseas subsidiaries (especially American Viscose which had grown bigger than the mother firm), on the technical side by four years of continual experiment in the laboratory and factory, and on the distributive side by their selling experiences in America. But the possibility of competition was greater. Viscose production was being expanded rapidly on the Continent and there was little to prevent continental firms from setting up subsidiaries in this country or exporting more to Britain. Moreover, at home there was a greater readiness to try to put new products on the market. Courtaulds Ltd. was now in the familiar position of a monopoly firm having to take into account the factor of potential competition when formulating its price and production policy; large profits could be a magnet sufficiently strong to attract new producers to the industry; restriction would leave a proportion of potential demand and of unsatisfied demands to new producers; the maintenance of high prices (which prevailed in 1920) would make it easier for newcomers to establish themselves in the industry. Other motivating factors for price reduction were the probability of rayon being substituted for cotton the nearer the rayon prices approached the lower cotton prices, and the probability, already mentioned, of greater substitution of rayon for silk, the more it fell away from the higher silk prices. Courtaulds chose to expand output and reduce prices in conformity with lower average costs, seeking thereby to maximise profits by the combination of high output and low prices, rather than by restriction. With an elastic[1] demand each price reduction brought in a fresh lot of buyers mainly from lower income strata, as well as stimulating further demands on the part of prevailing consumers. Thus, being able to cope with most of the demand for some years after the war, the leading firm was able to earn a net average profit of £2.8 million per annum from 1919 to

[1] Standard viscose prices fell by 16.6 per cent. between 1923 and 1924 while consumption increased by 37 per cent. Between 1924 and 1925 prices fell by 7 per cent. while consumption increased by 9 per cent. But as the yarn turned out improved in quality, the length per unit weight was greater. Consequently output in terms of weight is less than the true output.

1925[1] and to pay an average dividend of 20% on its ordinary shares; moreover, by means of bonuses to shareholders it succeeded in writing up its capital from £2 million to £20 million by 1924. Yet despite the attractive profits, which stood out in relief against the background of depression prevailing in other textile industries, up to 1925 no strong competitors entered the industry. Some half-a-dozen firms were started but they were all of a very small and experimental nature, nor is there any indication that they survived for long. The next largest concern, British Celanese, had a small output, but was then mainly occupied in trying to perfect the acetate process of manufacture. Courtaulds probably accounted for about 90% of total output.

This output, as we have pointed out, was sufficient up to about 1923 to meet total home demand, but in this year it was becoming apparent that the demand, accelerated by lowered prices, was becoming greater than supply. In 1923, the balance of imports over exports was 1 million pounds, which was about 11% of total consumption. By 1924 imports were 2 million pounds in excess of exports and about 15% of total consumption. This indicates that the leading firm underestimated the rate of demand growth, failed to keep production in equilibrium with consumption and, *pro tanto*, failed to earn the maximum revenue it could have earned had its supply been sufficiently elastic to meet demand. The supply of the remaining British firms was too small and inelastic to fill the gap between the leading firm's output and total demand; this was done by foreign firms, especially Italian firms, which

[1] Part of the earnings of overseas subsidiaries, especially American Viscose are in all probability included in these figures. A comparison of American Viscose earnings and the mother firm's earnings show roughly similar rates.

	Average Price per lb.	Average Profits per lb.	Profits as % of price
American Viscose 1921-25	$2.47	$0.90	40
Courtaulds Ltd. 1922-25	8/-	3.7/-	46

The American Viscose figures are from Taussig & White: Rayon and the Tariff: Q.J.E. 1931, p. 568.

produced an output in excess of Italian demand. It is unlikely that this discrepancy would have lasted for long, for already the leading firm was negotiating with foreign concerns with a view to sharing of markets and other interests, and already they were setting the basis for future expansion, and the monopoly would have been strengthened had not the profits and sales of the leading firm attracted the attention of the Government as well as that of potential rivals.

III.

In 1925, the Chancellor of the Exchequer in introducing the budget proposed new duties on silk and rayon, the purpose of which was to obtain a new source of revenue (estimated at £17 million per annum) in order to ease income tax rates. It was emphasised that the duties were not for "protective" purposes and it was pointed out that any suspicion of protection should be dispelled by the proposal to impose excise duties on the industries as well as customs duties. The customs duties ranged from 1/- per lb. on waste to 3/6 per lb. on tissues and the excise duties were 6d. per lb. on waste and 1/- per lb. on singles yarn. Drawback rates for exporters were also fixed.

The immediate effect of the imposition of duties was firstly, to cut down drastically the imports of yarn, which had been increased substantially between the time of the announcement of the duties and their imposition and, secondly, to stimulate a minor boom in the rayon industry. Eight new companies were floated with a capital of £3·6 million. The price-fixing firm had naturally protested against the duties, forseeing the danger of rivalry if any element of protection to the industry were to be given by the customs duties.

When the duties became law and it was obvious that its dominant position was to be challenged it kept prices at the same level, then in the following year reduced them still further by 7%. The lower level of prices coupled with other difficulties made it possible for only one or two firms to establish themselves in the industry. But this did not discourage other would-be producers and the investing public, for in 1928 there followed another promotion fever, this time not confined

to the rayon industry but spread over many other new industries. A total of £8.6 million was subscribed. The fate of the new concerns was similar to that of the 1925 companies. By 1934, of the 24 companies promoted since 1925 only 8 were operating.

Their failure was due to lack of finance, lack of experience in production, and inadequacy of the scale of production : these difficulties were accentuated by the price policy of the leading firm and by the depression after 1930. Many of the firms which went into liquidation underestimated the amount of capital needed to start a factory and get it working properly and never reached the production stage. Firms which did reach the stage when they could turn out yarn found that their total revenue was inadequate to cover total costs. For, firstly, on the revenue side they could not sell all the yarn produced because of its poor quality—the initial yarn, in any case, would have to be discarded and the production of rayon of the same quality as the older firms would require years of research and experiment and improvement in the technique of continuous production ; secondly, on the costs side, their scale of production was inadequate to bring in any economies. The industry had proved to be most economical when working on a large scale ; a Dutch subsidiary firm, floated in 1925, did not fail because it had all the pre-requisites for survival in the form of adequate finance and experience in production, while its factory was built on a large scale.[1]

Attempts were made by some of the new firms to minimise these losses by undercutting the leading firm's prices. They were not successful, because the increased output of the leading firm was sufficient to meet the expanding demand, and because of the low quality of their yarn : consumers, both immediate and ultimate, had grown accustomed to buying reliable yarn and demand for the poorer quality was inelastic. These difficulties were aggravated by the price policy of the leading firm. Hitherto price changes had been made about once a year, thus giving time to adjust prices to changing costs and output. To a certain extent this quasi-stable price policy also gave time for the new firms to try to adjust their costs if possible

[1] Cf. Hermann Levy : The New Industrial System (1936) p. 159.

to the leading firm's prices. But cuts were now made more frequently. In 1927 the Chairman of Courtaulds, speaking of possible price cutting leading to market collapse, stated that they "might be drawn to set a pace which would be killing to newcomers even if it involved the sacrifice of some of our ample reserves.[1] When the output of the surviving 1928 firms came on to the market in 1930 the Chairman thought it expedient to repeat this warning : "Up to the present we believe it has paid us and also benefited the whole industry to uphold a steady level of prices, even if it involved putting some restriction on the expansion of output. Lately, however, we have begun to feel our forbearance has sometimes been taken improper advantage of, and others have sought to advance their frontiers or stake out claims while we have held our hand. We do not intend to look at this for ever, for if we did we might find that the whole of our territory had been taken from us. At any rate, we feel that under the present circumstances a large reserve of liquid resources may prove to be the most potent argument for a conclusion which will give us the position to which we are entitled."[2] The "potent argument" took the form of a steep reduction in prices. In the four years preceding 1927 the price of standard quality viscose yarn fell by 20% ; in the four years following by 50%. The leading firm realised that sales at reduced prices of good-quality yarns would be more effective than just a reduction in the price of the low-quality yarns, and proceeded to bring down the price level of first-quality yarns to those of standard-quality yarns and standard-quality yarns to those of low-quality yarns. This had the double effect of clearing the market of bad yarn and of disconcerting new producers who were attempting to sell yarns according to traditional grading ; it meant that the very best yarn coming out of the factories of the new producers could not effectively compete with standard-quality yarn. The effect of this price policy on the new firms as a whole has already been indicated. The purge was not made without sacrifice, for in 1931, Courtaulds' reserves fell by £1.4 million in order to pay

[1] Courtaulds' Annual Report, 1927.

[2] Courtaulds' Annual Report, March 1930.

an "ordinary" dividend of 5%. The fall in earnings should not, however, be attributed wholly to the policy of accelerated price reduction, for, owing to the depression, total demand was falling and the revenue from overseas concerns had been greatly reduced.

Before we examine the policy of the leading firm during the thirties it should be pointed out that in addition to the new firms which entered the industry during the latter half of the twenties, the British Celanese Company had been expanding its output. This firm turned out acetate yarn which had physical and chemical qualities that made it particularly suitable for certain kinds of weaving and dyeing. It was not directly substitutable for viscose yarn and was sold at a higher price owing, primarily, to its higher cost of production, but it was evident that consumers for certain purposes were willing to pay more for the yarn. Although total acetate output would not have been more than 10% of total rayon output[1] and the possibility of widespread substitution for viscose was not imminent, the leading firm decided to invade the field of production.[2] The decision may have been prompted by the fear of increased competition, especially in the high-grade yarn market, or by a desire to weaken the most important competitor, or to increase earnings by the sale of two types of yarn with certain individual qualities by manipulating their prices, or just by the aim to achieve complete price leadership. The conflict took place in the House of Lords as well as in the rayon market. We are more concerned with the effects in the latter, but it is worth while noting that British Celanese sued Courtaulds for alleged infringement of acetate patents. Judgment was given to the defendants : an appeal was dismissed ; then finally judgment was given in the House of Lords, again in favour of Courtaulds Ltd. In the market the clash of interests took the form of keen price competition, but only for a short period, for both parties wished to avoid pushing down prices to the level where total revenue from the sales of the

[1] It was 12% in 1938.

[2] No attempt was made to enter the much smaller cuprammonium yarn market. Output of this yarn remained at about 2 per cent. of total rayon output and was in the hands of one firm.

yarn would fail to cover total costs and thus form a long-term liability, and at the time a general decline in prices was setting in. The leading firm was probably in a better position to bear losses, but viscose sales were, owing to the depression, beginning to fall off. The price competition, although short, had the effect of narrowing the price gap between the two types of yarn, thus facilitating substitution of acetate for viscose, and also the effect of increasing for a while the sale of acetate yarn because it had been brought to the attention of buyers who considered the old prices too high. The following table shows the changes in price[1] which took place between two similar grades of viscose and acetate.

	VISCOSE		ACETATE		
Year	Price	Index	Price	Index	Price Difference
1926	9/2	100	11/1	100	1/9
1927	8/5	92	10/9	97	2/4
1928	7/11	86	9/9	88	1/10
1929	7/1	77	7/10	70	–/9
1930	5/8	62	7/3	68	1/7
1931	4/9	52	6/4	57	1/7
1932	4/9	52	5/1½	46	–/4½

There is no evidence that Courtaulds succeeded in expanding their output and sales to a degree sufficient to obtain price leadership in this line, and during the thirties competition between the two firms was chiefly of a non-price character, but the level of acetate prices was conditioned by viscose prices and the gap between them was not allowed to broaden to the disfavour of acetate yarn.

IV.

The recession after 1929 was of short duration. Production of yarn fell from 53.0 million pounds in 1929 to 47 million pounds in 1930, but by 1932 total output had reached the 1929 level once again. The setback had the effect of finally liquidating sub-marginal firms and of compelling working firms to adjust their cost structures by dismissal of employees, by

[1] Prices from *The Economist*, November 11th, 1933. The grade is a standard English warp weavers' beam, but the comparison is not strictly accurate owing to the changing of grades during 1930 by the leading firm in order to compete along quality lines.

reduction of wages, by technical improvements and by greater standardisation of product. Several technical improvements which made for greater economy of production were introduced on the processing side and the number of types of yarn was reduced. These particular factors, coupled with the general factors of higher real wages, increased production, and easier export facilities made towards rapid recovery ; output increased in 1932 to 70 million pounds and by 1935 had reached 112.3 million pounds. The industry was now augmented by the surviving 1925 and 1928 firms, and the share of the total home market held by the leading firm was consequently smaller, though in all probability it still produced well over half the total rayon yarn output. The failure of weaker rivals did not cause the leading firm to relinquish its earlier policy of price reductions, but in contrast with the pre-1930 years the cuts were now much more infrequent and were coupled with sales promotion rather than with quality competition. The different rate of price cuts is shown by the following figures of changes in the average price[1] of a standard quality viscose yarn. Price reduction was influenced by the big fall in prices of real silk of 75 per cent. between 1929 and 1934, as well as by general price leadership considerations. To the other firms, especially the viscose firms, the price reductions, however infrequent, meant a readjustment of costs if a positive net revenue were to be maintained. "Unfortunately," said one firm in 1934, "Courtaulds Ltd., decided to make a somewhat

[1] Prices from the *Textile Weekly*, May 15th, 1936. The 1934 July price cut of 6d. followed a reduction of a similar amount on the excise duty on filament yarn. The standards were changed during 1930, so the figures do not measure the true extent of the reduction. The prices are for a different grade of yarn than those quoted above.

Year	Price per lb.	Index	Year	Price per lb.	Index
1925	7/-	100	1931	3/3	46
1926	6/-	85	1932	3/-	43
1927	5/-	71	1933	3/-	43
1928	4/9	68	1934 (June)	2/10½	40
1929	4/6	64	1934 (July)	2/4½	33
1930 (June)	4/-	57	1935	2/4½	33
1930 (Dec.)	3/9	53	1936	2/4½	33

drastic reduction in viscose prices which, of course, we have to follow." In the following year the complaint was repeated. "Our main problem is to meet the competitive prices which are forced upon us. We have little or no control over selling prices, so that the only means left to us of achieving satisfactory financial results is by reducing production costs and in due course by expansion."[1] But the profits of the leading firm were much more moderate than those of the pre-1930 phase of development, being on the average about half the 1925-1929 level. It is possible that this was the result of deliberate policy as an element of discouragement to potential producers and existing competitors in conjunction with the price reduction policy, but the smaller share of the total market and the lower earnings from abroad also made towards lower profits. Furthermore, part of the gains from increasing efficiency were used up in the development of new lines of production based on the cellulose process. Of these the rapid growth of "staple fibre" production was the most significant.[2] This product could be produced at lower cost than continuous filament yarn ; to the stage of spinning staple-fibre production is the same as continuous filament production, but thereafter the yarn, instead of being wound into cakes separately, is cut *en masse* into staple lengths suitable for spinning on cotton machinery. This allows great economy of production, of floor space, of fuller utilisation of plant and of lower maintenance costs, and enabled the leading firm, which had a virtual monopoly, to fix prices at about one-third of the level of standard continuous filament yarn. When the excise duty on "waste" (which classification included staple fibre) was reduced from 6d. to 3d. per pound in 1933, the price was lowered by the same amount. In 1935 the excise duty on "waste" was abolished, and again the price was reduced by 3d. The price cuts were accompanied by vigorous sales promotion designed to bring the staple to

[1] *Annual Report of British Enka Ltd.*, 1935 and 1936.

[2] The leading firm also took up the production of transparent or cellophane paper based on the same process and just before the outbreak of war (1939) began developing the yarn "Nylon," based on an entirely different process but in conjunction with Imperial Chemical Industries Ltd.

the attention of the cotton spinners. The price reductions were motivated by the intention of closing the gap between the price of rayon and that of cotton, in addition to the desire to monopolize this branch of production, and the 1935 reduction put staple fibre price on par with Egyptian cotton.

The upward swing of the trade cycle improved the prosperity of the whole industry, but when the recession came in 1938 sales and production fell sharply by 18% from the peak in 1937 as compared with a 12% fall in 1930 from the 1929 level. The leading firm tried the expedient of further price cutting, but demand was falling too rapidly to be responsive to price cuts and its revenue fell from £3.4 millions in 1938 to £0.5 millions in 1938. It was at this juncture that an agreement on rayon prices was reached between the leading viscose firm and the remaining viscose firms, and, shortly afterwards, with the leading acetate firm, with the result that early in 1939 prices of rayon yarn were *raised* for the whole industry. By this time the risk of attracting new competitors through higher prices was small, for prices were far below the level which had prevailed in the late twenties, and no new firms had tried to enter the spinning side of the industry since 1928. The raising of prices uniformly for the whole spinning industry prevented any viscose or acetate firm from "spoiling the market" by adhering to the low prices and expanding sales at the expense of the other firms. Thus price leadership was abandoned for the policy of sharing the market. Price leadership could be maintained without consulting other firms when the desire was to stabilise prices or lower them, but there was no guarantee that the other firm would *raise* prices if the dominant firm chose to do so ; hence the agreement on prices, which implied a sharing of the market roughly in the proportions determined by about a decade of rayon production untrammelled by the entry of new firms. Instead of a monopoly price designed to maximise the earnings of one firm, the new policy was that of a monopoly price designed to maximise the earnings of all the rayon firms who were party to the price agreement, providing that their respective outputs were kept

in the same fixed proportions.[1] But if price policy now in the filament yarn market was that of a group of firms acting as a single monopolist, the staple fibre market was still almost entirely the domain of one firm : and if demand in the former market was not considered sufficiently elastic to justify further price cuts, in the latter market it was considered elastic enough to warrant further price reductions. The leading firm was prepared to accept the *status quo* in the rayon section for the sake of trying to increase revenue by agreed price increase ; in the staple fibre section, which had been expanding at a much faster rate than the rayon section and which held possibilities of greater expansion, it kept a free hand and proceeded to apply its own price policy without the collaboration of other staple fibre producing firms ; and the policy followed closely that applied for twenty years in the rayon section—that of price reduction in conformity with expanding output, demand, and the strength of other firms.

V.

A word should be said about the effect of the leading firm's price policy on the consumers of the yarn. The immediate consumers, apart from the spinning firms themselves, consist of very numerous weaving, finishing, hosiery-making and garment-making firms, in contrast with the few large units on the spinning side. As price reductions were passed on, the ultimate consumers benefited from the reductions, but the effect on the industrial consumers varied according to the proportion of rayon consumed relative to total costs of manufacture and on the nature of the demand for the product : the more elastic the demand the more likely were they to increase revenue. The growth of rayon weaving in the cotton area indicates that rayon fabric manufacture was worth while. Manufacturers catering for the export trade were ready to accept a reduced price providing it did not arise from a reduction in the excise duty, because the drawback on excise duties was large enough to act as a subsidy for exports and the maintenance

[1] Cf. A. R. Burns : *The Decline of Competition* (1936) p. 176.

of the drawback arising from the excise duty, and hence the maintenance of higher prices, was preferable, they argued, to cheaper yarns and no drawback. The price increase met with much protest from the weavers because merchants were unwilling to take on the higher prices.

The influence of the two leading spinning firms did not end with yarn price-fixing. Weavers were sometimes met with competition in the finished-fabrics market from the leading firms who had partially integrated the process of finished cloth and garment manufacture. The immediate consumer was also persuaded to brand his rayon products with the spinning firm's name[1] and was provided with advertising material designed primarily to extol the yarn-producing firm's name rather than the manufacturer's. Finally, prices of finished garments turned out by the spinning firms and sold directly to the retail market were determined by the spinning firm. Dealers who failed to maintain the suggested prices were liable to lose their supplies ; they could, owing to the diversity of products sold in the clothing trade, avoid buying and selling the branded wear turned out by the leading firms but in doing so were liable to lose some "goodwill" because through intensive sales promotion the products had become well known to the consuming public. Generally, by means of partial forward integration, and of a broad selling organisation, the two leading firms widened the scope of their control. The more the consuming firm depended on rayon yarn as a raw material, the more would it be influenced by the yarn price policy of the spinning concerns in its buying market, and if its manufactures were similar to the products turned out by the spinning firms it was liable either to direct price competition or to non-price, or sales competition, in the selling market.

[1] In 1937 Courtaulds Ltd. started a selling scheme called the "Quality Control Plan" whereby manufacturers could send their product to be tested for tensile strength, washability, fabric construction, etc., by an independent testing house. If the article came up to the necessary standard the manufacturer was allowed to fix a label on it with the Courtaulds' name and certifying its good quality.

VI.

Thus the general price policy of the leading firm before the outbreak of war was that of trying to equate marginal revenues from several sections of the industry by price manipulation. Its price-fixing freedom was limited *inter alia* by the different stages of development of each section, being least in the most mature section and greatest in the least mature section. During the phase of complete monopoly, when a single commodity was being produced under strong demand, the problem of price fixing was relatively straight-forward and the main aim was profit maximization ; but when the viscose market became quasi-monopolistic and for a brief period competitive, and, the acetate market duopolistic, price policy was primarily competitive rather than profit maximizing, With the failure to impose price leadership in the acetate market, the elimination of uneconomic units, and the knowledge that the surviving firms in the viscose market were not in a position to "spoil the market" by undercutting, the prices set were less competitive and were stablised for longer periods, and the gains from stable prices and a growing demand were utilised to expand capacity and develop new products rather than increase dividends. The expansionary phase of the cycle favoured these developments, and while demand was elastic in the several markets, revenue could be best maximised, and the position of the dominant firm relative to other firms best maintained, by the general policy of occasional price reduction —apart from the retail market where prices were more sticky and competition was mainly of a non-price character. But when the different markets showed signs of varying elasticity owing to cyclical changes and to the different degree to which they had been exploited, the marginal revenue from each of them could not be equated by further all-round price reduction. In the rayon yarn section of the industry, which was more mature than the staple fibre section, when demand fell off the policy of price leadership was abandoned and prices were raised by agreement for the whole spinning section, but only after unsuccessful attempts at further price cuts ; after some eighteen years of successive price reduction the degree of

possible price reduction was smaller and the cuts made were not sufficiently steep to arrest the declining demand. In the staple fibre section, with its lower costs, higher demand elasticity, more complete monopoly and greater prospects of further expansion, the price reduction policy was continued ; nor were there signs of higher prices in the transparent paper section. The Nylon yarn section was still in the experimental stage and there was no clear-cut marketing policy. It remains to be seen whether Nylon prices of the future will follow the pattern set for rayon yarn.

EDGAR JONES

THE MANCHESTER SCHOOL

Acting Editor: T. S. ASHTON

During the war *THE MANCHESTER SCHOOL* will be published at irregular intervals, and not as previously in April and October of each year. Beginning with Vol. 13, subscriptions will be charged at the rate of 5/- *per volume* consisting of 2 parts, instead of 5/- *per annum* for 2 parts, as hitherto.

SUBSCRIPTIONS should be sent to the Secretary, University Press, 8-10 Wright Street, Manchester, 15.

EDITORIAL COMMUNICATIONS should be sent to the Editor, *The Manchester School*, Department of Commerce, The University, Manchester, 13.

The Manchester School

of Economic and Social Studies

VOLUME XIII

Manchester University Press
1944